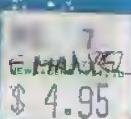


June - Volume 12, No 6

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**\$699****DKB Mongoose 50**

68030 50MHz - 4Mb 32Bit RAM - 68882

**\$899****TRA 1200**

68020 28MHz - 4Mb 32Bit RAM

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**\$189****NEW Turbo Accelerator Memory Expansion Card For Your Amiga 1200 from DKB****SigmaCom**

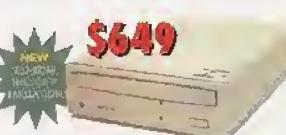
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## POWER CD-ROM FOR A1200

**\$649****Affordable SCSI CD-ROM for your A1200****CD32 Emulation**

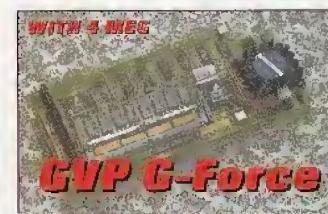
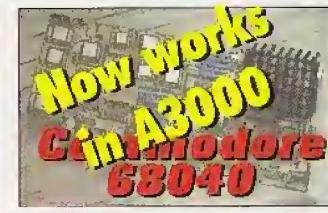
The new double speed Power CD-ROM for the Amiga 600/1200 plugs directly into the PCMCIA port and provides a direct SCSI interface, allowing up to six additional peripherals to be connected, for example: Syquest Drives, Hard Drives, Flatbed Scanners and DAT Drives. What's more the Power CD-ROM features a "Hot-Plug" and "Un-Plug" even when your Amiga is switched on.

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Fast PCMCIA SCSI interface for your Amiga 1200 and 600. Supports "Hot-Plug" and "Un-Plug". Supports up to 7 SCSI-I and SCSI-II devices.

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# Put your Amiga in its Place!

with Professional DeskTop Video products from Sigmaxom.



The Personal Animation Recorder is shaping up to be one of the most powerfull and popular Digital Video cards for the Amiga.

Its quality has passed the broadcast test at many of Australia's commercial television networks. By now I'm sure you have seen the PAR output on television, but not know you've been watching it!

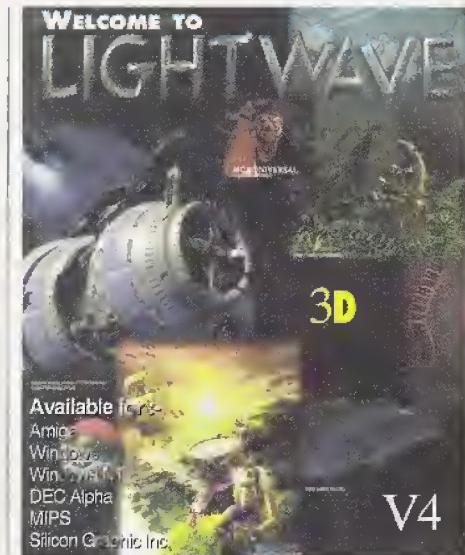
Many of our clients are using the PAR with 3D rendering packages such as Lightwave to produce TV commercials, Music videos and much, much more.

Here are some of the reasons the PAR has become so popular :-

- Broadcast resolution output
- Real time 25fps Playback of video
- Full 24Bit Colour
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- Y/C output (S-VHS® Hi8®)
- Composite Video output
- Interface with any Amiga graphics s/w

With the Capture board you add even more versatility :-

- Real time 25fps Capture of live video
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- Y/C input (S-VHS® Hi8®)
- Composite Video input



Model, Animate & Render with the Incredibly powerful New version of LIGHTWAVE 3D. Version 4. Some of its new features include, Inverse Kinematics, Metaform functions and Multi Platform support - plus much more.



Here at last.... an affordable, broadcast resolution non-linear editing system has finally arrived in the form of V-Lab Motion!

Its a fully functional non-linear editor and real time 24-bit animation recorder with audio support via the Toccata 16 bit stereo sampler card.

Full time line edit control with A/B roll type interfaades and wipes. Also keying and "Blue Box" effects.

V-Lab Motion was "product of the year" in AMIGA PLUS (Germany) as well as a "Perfect 10" an AMIGA COMPUTING First.

Here are some of the features of the V-Lab motion system :-

- Outstanding quality non-linear editor
- 16 bit audio with the Toccata
- Complete ARexx support
- Comprehensive digital effects
- Digital character generator
- Chroma keying for "Blue Box" FX
- Composite & Y/C inputs
- Composite & Y/C outputs
- Freely adjustable data rates
- Optional Component in/outputs
- Powerful Movie Shop Software
- Time Line & Hierarchical editing
- Use as animation recorder
- \$ 2788 for V-Lab Motion
- \$ 869 for Toccata

"The V-Lab Motion system will blow your socks off!"

— Michael Ricks, Producer/Director  
— SUNSTONE PICTURES, Phoenix, Arizona



MM400 is the latest upgrade to SCALA and adds multi-platform support with the addition of the File format EX's, New text wipes, better anti-aliasing, X/Y font scaling and more.

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Imagemaster - how do they stack up?
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Can a local product challenge the big boys?

Cover created by Jarrod Pudsey  
Image: 1500 x 2000  
Program: Lightwave 3.5  
Machine: A4000/040/40MHz

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## Imagemaster Update

Black Belt Systems have released Imagemaster R/t 1.60, an update from the 1.5 version mentioned in the image processor comparison in this magazine.

There are what sound like some very funky new plasma tools, and various other enhancements to interface and documentation.

Black Belt say the plasma tools can generate flame events in still frames or over time - gas flames, candles, log and forest fires, and even the oil wick of a hurricane lamp.

All of the flame parameters are configurable - there's independent control over the flame's base, middle, end and tip colours, you can control how much the flame distorts the background behind it, how turbulent it is and more.

The plasma suite also features an electrical generator to create lightning and other electrical effects - outdoing ImageFX's little light-

ning tool. You get built in effects like Summer Storm, Windstorm, Fibrous and Gamma Bursts, and, once again, everything's configurable - colour, glow, zapping, saturation, taper, width and more. As with the flame tools, electrical effects can be animated over time using ARexx, for realistic travelling bolts and strikes.

Among the other tweaks in 1.60 there's the ability to force all screens to 4 bit, 8 bit or AGA, which is aimed at helping the performance of the weaker AGA emulations featured by Amiga 24 bit graphics boards.

Contact Black Belt Systems on +406 367 5513, fax +406 367 2329 for more information.

## CEI Speaks

After the defeat of Creative Equipment International's cooperative bid with Dell for the Amiga technology, they've issued a release detailing where they plan to go from here.

CEI affirmed their interest in licensing Amiga technology and developing "new more powerful Amigas", and stated that they would still be "aggressively marketing, supporting, and distributing the Amiga and Amiga products." According to the release, CEI have no plans to move to other platforms to the exclusion of the Amiga, although they'll still carry multiplatform products that are usable with other machines beside the Amiga.

They were hazy about their association with Dell, saying that they had "found a lot of common ground to work together" but not saying much else, and only hinting at future cooperation.



## Correction

In last month's Amiga Review we mentioned the Adelaide Amiga User Group and its free-trial policy; unfortunately, we got the name of the Group's secretary slightly wrong and his phone number completely wrong.

The secretary's name is Marc Johnson, and his number is (08) 339 3930.

## New VLAB

Macrosystems VLAB motion software has stepped up to version 2.2. New sound editing and capture Windows have been added, along with a SMPTE generation tool and a disk reorg function to gain back wasted video and audio partition space. Look for a close up test of the system in our July issue. Call TV Graphics on (03) 521 2455 for more information.

## CrossDOS Update

The version of CrossDOS most Amigans use is the one bundled with Workbench 2.1 and above, which is not the full package. The new version 6. Improvements include doubled floppy access speed - none too soon - much faster hard disk writes, true MS-DOS hard disk partitioning (no preformatting on an MS-DOS machine needed), support for bridgeboard and PC-Task diskfiles, network compatibility, and considerably enhanced utilities. There's full-time phone support in the US - from one AM till nine AM, Australian eastern standard time - and CrossDOS lists at \$US60, with upgrades available to registered owners from Desktop Utilities.

Contact DTU on (06) 239 6658 for more information.

# Great Australian products distributed by Small-Biz Software . . .

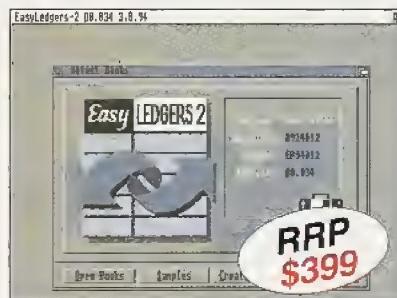
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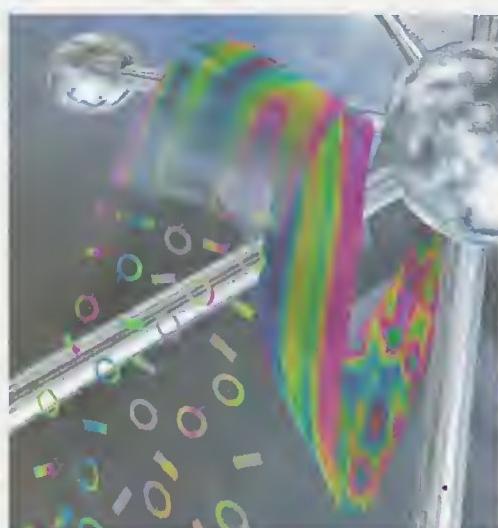
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• Lightning 540MB SCSI II	\$ 399-
• Trail Blazer 850MB SCSI II	\$ CALL
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<b>A4000 Seagate IDE Drives:</b>	
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<b>A1200 Seagate 2.5" IDE Drives:</b>	
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• 340 MB	\$ 439-
• 455 MB	\$ 489-

## Accelerators & RAM Expansion

### A500/600:

• A500 512k RAM Expansion	\$ 49-
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• GVP A1230 II 40MHz Co-Pro	Special \$ 139-
• GVP A1230 II 50MHz Co-Pro	Special \$ 199-
• GVP A1291 (Suit A1230 II)	\$ 159-

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• GVP 4008 (up to 8MB RAM)	\$ 299-

### A4000:

• DKB 4091 SCSI-II Expansion Card	\$ 549-
• GVP 4008 (up to 8MB RAM)	\$ 299-
• GVP 40MHz '040 4 MB 32bit RAM	\$ 1649-
• Warp Engine 040 40MHz	\$ 2299-

### A500/A2000 Chip RAM Expansion:

• DKB MegaChip board	\$ 339-
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**DKB**

*Amiga 1200  
Accelerator  
Products*

1202, no Co-Pro, 0MB	\$ 159-
1202, 68882 @ 20MHz, 0MB	\$ 189-
1202, 68882 @ 33MHz, 0MB	\$ 229-
Cobra '030MMU 28MHz	\$ 299-
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Cobra '030EC 40MHz	\$ 449-
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Mongoose '030MMU 50MHz	\$ 649-
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SCSI-II Option for Cobra & Mongoose	\$ 195-
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Amiback	\$ 55.00	ImageFX V2.0	\$ 399.00
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HiSoft Pascal	\$ 199.00	Typesmith V2.5	\$ 199.00
Hollywood FX	\$ 289.00	Vista Pro 3	\$ 99.95
Hollywood FX Lite	\$ 79.95	Wordworth V2	Clearance \$ 29.00
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*This list is not exhaustive. Please phone for any titles not listed.*

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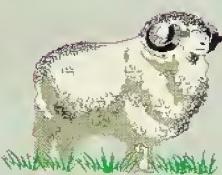
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# An Amiga Future

I have multitasked in Windows '95, I have QuarkExpressed on a Mac, I have surfed the net from a DX/66 laptop and played multimedia on a quad speed drive, I have rendered on a Pentium, I have PowerPC'ed, I have task switched, shuffled, and dragged on just about every choice brand, but they are all just machines. Only one stirred emotion. The Amiga.

Amiga is special. Amiga is freedom. Amiga is knowing you can move on instead of waiting around for the hardware to catch on. Amiga is buying a computer in 1991, and in 1995 knowing it still outperforms the competition in all the departments that matter to you. Amiga is knowing you can upgrade, and the add ons will really make a difference. Amiga is having something unique and feeling good about daring to be different, and enjoying every ounce of sizzle that difference offers you when it comes to getting something done.

For the last year Amiga has also been about faith and hope. Many people hung in there because the technology might be resurrected. They put faith in the promises made by would be buyers, and hoped that their investment would be fruitful again at some time in the future.

At the end of the dark road we've travelled since Commodore was buried and the deathbed vigil ended, the new world of Amiga is shaping up. It is something of a renaissance, a rebirth. There are new players and new software publishers leading the way as we start to rediscover the potential of this grand platform.

Like many companies in the Amiga industry, we've stuck it out despite the very real possibility of everything grinding to a halt. As some of you may

know, it was in late June last year that Amiga Review changed hands. After twelve years in the stable of Gareth Powell, Amiga Review moved to Storm Front Studios. Forking out money for a publication facing the possibility of extinction may seem foolhardy to some. However, I was convinced the Amiga would recover and that we could go on to do all the things with Amiga Review that many of the magazine's greatest supporters have only ever dreamed about.

We started with a slight handicap - by the time Amiga Review was in our control the July issue was running horribly late. We should have called it August and carried on. However, our enthusiasm demanded we at least try to bring the publication back on time. This later proved impossible, with all the variables of editorial, advertising, production, reprographics, printing and distribution compounding to force us to skip an issue in November.

Despite this, we had managed many improvements in the look and size of the magazine. Last month's reader survey has helped to pin point many more areas where we can improve. We also have plans for some very sharp new graphics for the magazine, designed by Jarrod Pudsey - who currently also creates all of our front cover images. From here on you can look forward to more improvements in the look and content, and we'll continue to seek your feedback to ensure Amiga Review qualifies as your choice in Amiga magazines. The Amiga is back and we plan to follow this new period of growth and change with increased vigour. Roll on the Amiga Renaissance.



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# The clash of the image titans

*ImageFX 2.0 vs ImageMaster R/T  
1.5 vs Art Department Pro 2.5*

By Peter Adams

► The Amiga has an excellent range of image processing software. All of the commercial products can deliver high quality professional results.

While Art Department Professional (ADPro) from ASDG has long been regarded as the top image processing package on the Amiga, both ImageFX (Nova Design) and Imagemaster (Black Belt Systems) have been vying pretty hard for the crown. Coincidentally, the latter two packages have recently had major updates - ImageFX 2.0 and Imagemaster R/T 1.5. So, without further delay, let's take a look at what these updates entail, and see how they measure up to ADPro 2.5 in a head-to-head, winner takes all contest!

## Screen Layout

The screen layouts for both ImageFX and Imagemaster have remained basically unchanged since their last major releases. Both are highly configurable, but ImageFX goes one better in that you have the option of opening it on the Workbench screen, just like ADPro. Re-targeting the display on third party 24 bit display card

screens is supported in both programs - with OpalVision and Firecracker being the common boards. ImageFX again has the edge over Imagemaster - it also supports IV24 and Retina. Neither supports the Picasso, Piccolo or EGS Spectrum. ADPro supports the Picasso board as well as OpalVision, Retina and Firecracker. All of them work on a plain ECS Amiga, too.

## Help Me If You Can!

Both Imagemaster and ImageFX have on-line help. Imagemaster's on-line help is in hypertext format (click a word to see the reference...), and it completely supplants the program manual. Navigating your way around Imagemaster's help/manual is fairly straightforward. The on-line help for ImageFX is also in hypertext form, but it's nowhere near as comprehensive as Imagemaster's. Nova Design state that the ImageFX on-line help is there for assistance - not as a substitute for the book manual included with the program. ADPro comes with no on-line help - it just comes with a well compiled and hefty manual.

## Loaders and Savers

Both ImageFX and Imagemaster have a plethora of loaders and savers. Imagemaster has more loaders, including CMY and CMYK and even Atari's Degas



*ImageFX Original*

and Neo Chrome formats! However, ImageFX has more saver formats, including ones for Sun and Silicon Graphics formats. All the common PC and Mac graphics file formats are well provided for in both packages. ADPro has quite a number of loaders and savers, but some of the common PC and MAC ones are only available in a module which you have to purchase separately.

### **Image Operators**

Operators, operators, operators - boy, do these programs have image operators! There really isn't that much between ImageFX and Imagemaster in the number and variety of operators they provide. All the usual operators are there - cropping, scaling, changing palettes and so on - as well as lots of special effects such as solarisation, motion blur, compositing, emboss, antique and more. While there are a lot of common operators, each program has a few special effects all its own. In this category, ImageFX has the edge over Imagemaster - but not by much. Worthy of particular attention are the ImageFX operators Lens Flare Creator and Lightning Bolt Generator.

The Lens Flare Creator allows you to add a lens flare to an existing image. You can control such factors as type of flare, light radius, brightness and artifacts. The Lightning Bolt Generator is a bit gimmicky but you may find it occasionally useful... like, um, when you want a lightning bolt in your picture!

While random factors are generated by the program for the lightning, you can set parameters for elements such as the type of bolt, the number of forks and the glow intensity, and the results can be quite impressive.

I should also mention that for most operator requesters, ImageFX

includes thumbnail previews to show you how the effect is going to look - a nice touch!

So how does ADPro measure up to these guys (ImageFX and Imagemaster) in the special effects department? Not too well really - ADPro just doesn't have anywhere near the array of special effects operators of either ImageFX or Imagemaster.

### **Painting Tools**

Slip! Slop! Slap! If you want to paint on to your images with brushes, then both ImageFX and Imagemaster can accommodate most of your requirements. If you're using ADPro and want to do a bit of touch up painting on an image - tough. ADPro doesn't include any painting tools. ASDG presumably take the view that there are more than enough dedicated paint packages on the Amiga which do a pretty good job.

### **But wait! There's more!**

If you think I've just listed all the features of ImageFX and Imagemaster, you're seriously mistaken. These packages are jam packed with modules including morphing, multi-frame and/or multi-effects batch processing and support for flat bed scanners. Oh, I almost forgot, ARexx is well implemented in both of them. ADPro also has an extensive ARexx implementation.

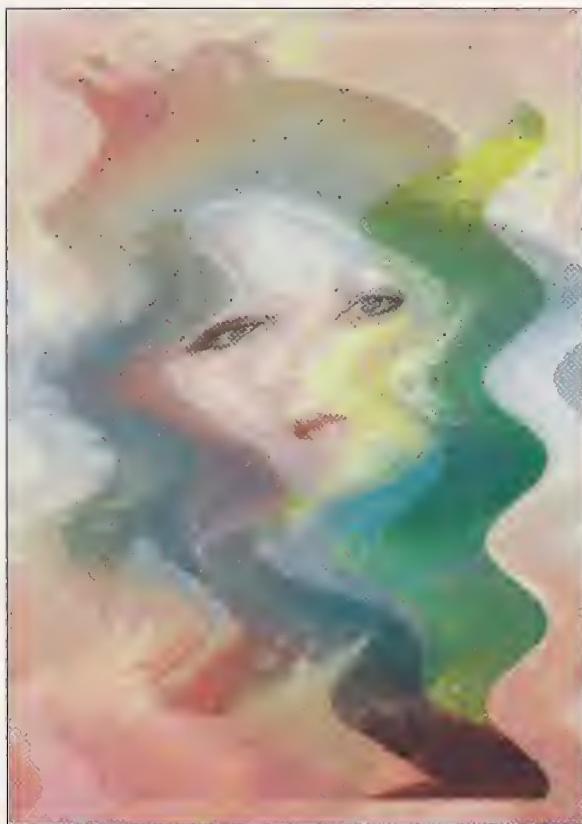
The morphing modules in ImageFX and Imagemaster are pretty similar, and both work well. Cinemorph, which was originally issued as a stand alone morphing program, is now included free with ImageFX. There's no morphing module in ADPro as such - you have to buy a separate program, Morph Plus. Morph Plus isn't cheap (although it costs less than ADPro), but it does have additional operators, and it integrates nicely with ADPro.



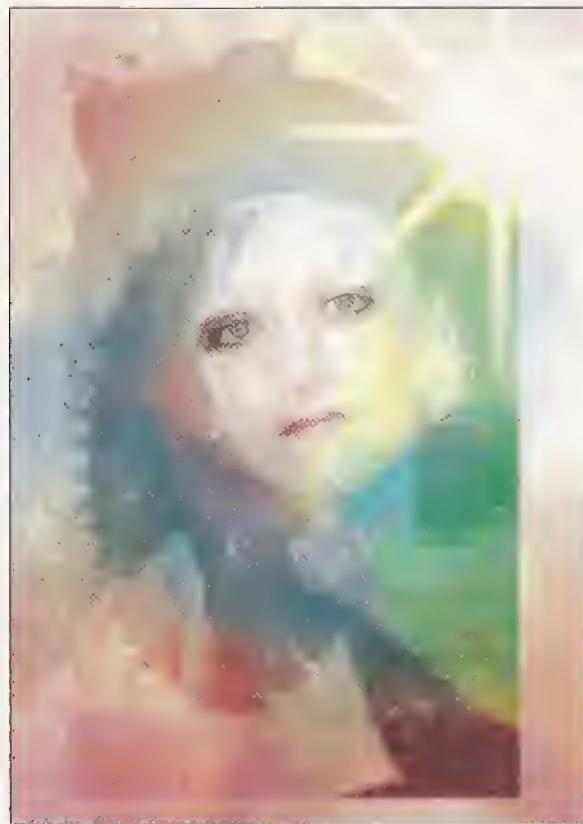
**ImageFX Crystallise**



**ImageFX Lightning**



*ImageFX Dream*



*ImageFX LensFlare*

The ImageFX Multi Processor (or IMP for short) is a batch controller for single images, sequential images, and animations. Its layout and operation are adequate and it does have a few in-built scripts. Imagemaster's Multi-Frame Processor incorporates a nice graphical film strip layout, but you need a good knowledge of ARexx to get it to work. ADPro comes with FRED (FRAme EDitor) which does a fair job of multi frame/multi effects processing, and comes with quite a few ready to use scripts.

However, for my money, none of these batch processors come anywhere near the mighty Pro Control, which is an add-on module for ADPro. Sure, it costs money (it's moderately priced) - but it's

worth paying that little extra for a batch processor which is so well designed, simple to use, and reliable.

In the scanner department, ImageFX and Imagemaster both provide modules for the Epson range of flat bed scanners. ADPro provides modules for Epson and Sharp scanners via another program you have to buy separately.

#### Updates

Black Belt Systems regularly update Imagemaster. Registered users need only send \$US25 in order to receive the latest version. Nova Design have recently announced a minor upgrade to ImageFX which will include some

new special effects (Sparkle and Film Grain), blue and green screen compositing, and support for the new Cybergraphics 24 bit card as well as Primera and Picture 310 colour printers. There haven't been any recent update statements about ADPro.

#### Give me RAM - lots of RAM!

If you're thinking of using any of these packages on a twin floppy drive A500, forget it! All of them use lots of RAM, need at least a 68020 processor and have to be installed on a hard disk. You can run most common functions on a 6Mb system, but more complicated special effects require more - 10Mb or



**ImageMaster Caricature**

better. Ideally, you need a monster accelerated 68040 Amiga with enough RAM to choke an elephant!

#### **And the winner is...**

Well, it isn't quite that easy - all of these programs are winners. The most complete package overall is ImageFX - but that doesn't mean it couldn't stand a few improvements.

For instance, it'd be nice to see a batch controller as good as Pro Control in a future ImageFX upgrade. Nevertheless, with a retail price of \$399.00, ImageFX is very good value indeed.

Imagemaster, on the other hand, isn't far behind ImageFX in

the features stakes and with a retail price at around \$230.00 is also excellent value.

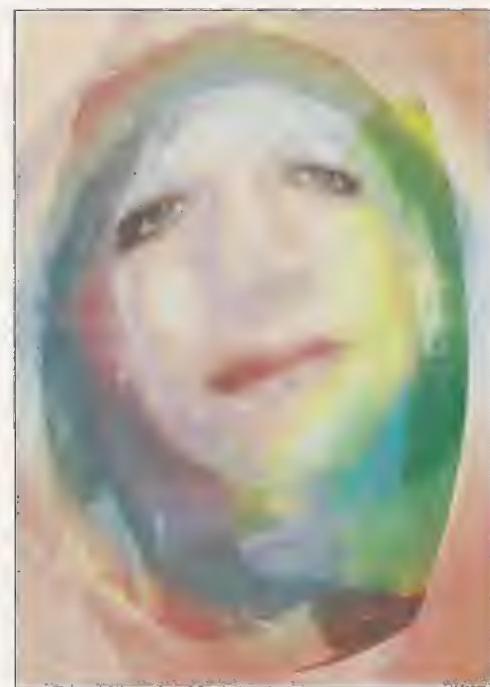
Finally, ADPro... what can I say. It's pluses are that it has a good user-friendly interface, it performs well, and has the excellent Pro Control as a front end batch processor. The main down side is that you have to pay for additional features in the form of plug-in modules - which, in the end, will cost you more money than the all singing, all dancing, ImageFX.

The recently released Photogenics (see the review in the April 1995 Amiga Review) has set some high standards in terms of image processing features and performance, as well as value for money. Whilst Photogenics is currently designed

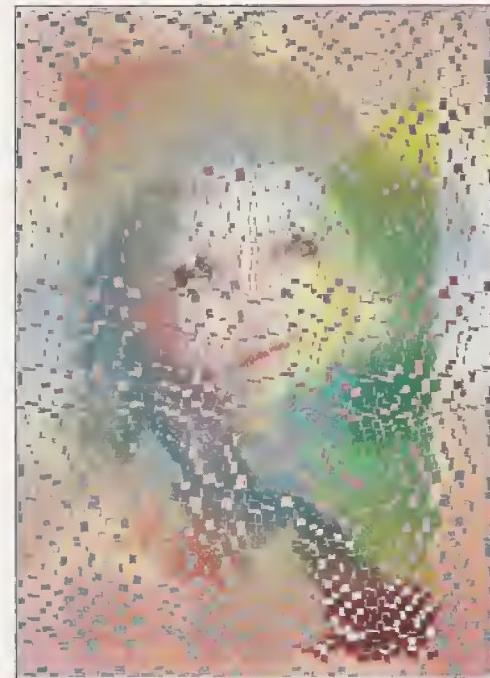
for single image handling on AGA machines, it's hoped that future developments by Almathera will incorporate multi-frame processing features. When it does, things will really hot up!

With the Amiga now getting off the floor courtesy of a massive electric shock from Escom, competition among the Amiga image processing programs needs to remain fierce in order to ensure that interest in the platform is sustained.

If that happens, the real winners will be us consumers!



**ImageMaster Dome**



**ImageMaster Tile**



# Get SLIPped with MultiLink

By Adrian DeLuca

A quiet revolution is taking place among the Amiga Internet users, which I think is the best thing since sliced bread. What is it, I hear you ask? Well, I'll give you some background information first.

If you're a regular Internet user, you've no doubt heard the word SLIP pop up at some time or another, and if you know what SLIP is, you know it is terribly expensive. SLIP stands for Serial Line Internet Protocol, and allows computers to be hooked up to the Internet's TCP/IP protocol through a standard serial port - you effectively become your own node on the Internet!

What makes SLIP so attractive is that it delivers the Internet to you in your normal desktop environment - in the case of Amiga users, the Workbench - instead of a boring old UNIX prompt where you try to learn all of its cryptic commands.

Many Internet providers are now offering SLIP connection to their servers for a moderate initial connection fee, plus an hourly or monthly charge. Some offer a high yearly flat rate and give you a lim-

ited amount of time per day - mind you, these servers are most likely slow not big on free dial-in lines. So if you're a poor old university student and can't stretch your budget to a real SLIP account (like me!), but have a plain old shell account, then Ezra Story's latest brilliant invention is for you. What am I talking about? Multi Link of course!

Multi Link (abbreviated to MLink) is best described as a partial SLIP emulator for a UNIX shell account. It's not an emulator strictly speaking, but it's easier to think of it as one. MLink is a TCP/IP stack protocol just like AmiTCP and Commodore's AS225 networking package, but it uses different routines to communicate with your Internet server, and is a heck of a lot easier to set up!

MLink is being hailed as an outstanding revolution in TCP/IP networking by Amigans all over the net; it opens a new door to shell account users, and best of all it available freely from Aminet (<ftp.wustl.edu>) as /comm/tcp/mlink1.1.lha.

MLink can be directly compared to the program TIA (The Internet Adaptor). TIA is a commercial product released by Cyberspace Inc, so you'll be paying a whole lot of cash for it. Also, TIA requires that you have a SLIP driver running on the Amiga, which means you will have to set up AmiTCP. The beauty of MLink is that you don't necessarily need AmiTCP installed - but it is recommended. MLink comes in two essential parts - there's the program which runs on the Amiga, and the program which runs on your UNIX server. It's essential that both these programs are put in the right place, as they need to send and receive data packets from each other.

Once you've extracted the archive, you'll notice a file called mlink.tar.gz. This file must be uploaded to your UNIX account and extracted with the gzip program. It contains the C source for the UNIX end of MLink. It is provided as source so it can be compiled according to the platform of your Internet server. I compiled it on a DEC platform flawlessly, but compiling it on a Linnix server requires a small change in the installation

script. Unfortunately, I didn't know this when I first attempted it, so a quick chat to some Amigoids on the #amiga channel on IRC set me back on track, but only to find that it was all documented in the provided Amigaguide file under Troubleshooting (d'oh!).

After having compiled the UNIX MLink end, you're ready to configure the Amiga end. Again, this is rather simple, as the configuration is done in the tooltypes of the MLink icon. The most important thing is to set the average CPS rate (Characters Per Second). The current version of MLink does not support autodetecting the baud rate; this will be one of Ezra's improvements in the next release.

The CPS speed is determined by the link you have with your Internet provider; for example, a 14.4K link with your Internet provider will average 1600 CPS. Another important option is the device you'll be using to send and receive data. This will probably be serial.device, although some other shareware device drivers such as dialer.device and baudbandit seem to work fine.

You'll also need to tell the Amiga side of MLink where the UNIX end is located in your directory, so you will need to set up the path to it. One other important piece of information you need to know is how your server sends its packets of data. Most servers don't send 8-bit clean data over the modem; in this case you will have to set the ESCAPE bit on MLink, which tells it which character not to send over the line. Unfortunately, this is a matter of trial and error - you'll have to experiment with some characters until you get it right - but the MLink.guide offers a range of possibilities. In my particular case, I had to filter out the "\*" .

Before you can use MLink, you need a few of the finest Internet

clients available on the Amiga. Clients are programs which interact with the Internet connection to bring the data through the modem and to your screen. Clients have simple interfaces which make them easier to use than UNIX command line programs.

MLink uses clients made for AmiTCP, not for the Commodore AS225 networking package; be sure that when you're collecting new clients that they're made for the AmiTCP stack protocol. After some experimentation with some of AmiTCP's clients, I found that most of them didn't work properly - but don't despair, the most important clients work. If you've already established yourself as an Internet user, you'll know that you cannot live without a World Wide Web browser, an FTP client and my favourite, an IRC client, so we're off to visit Aminet to pick up a few goodies! There are a heap of clients available on Aminet in the /comm/tcp directory. I've made a list of clients that work.

#### **A-Mosaic**

I consider this the most important of my Internet tools. A-Mosaic allows you to surf through the net via World Wide Web and visit some cool international sites, view pictures, download files, play sounds and, now, even play games! If you've ever used NCSA's Mosaic on Windows or X-Windows, a similar version is also available for the Amiga. There have already been a few versions of A-Mosaic released; it's currently up to version 1.3 beta. Aminet only currently holds version 1.2, but if you want to live on the edge and give the beta version a spin, point your URL to: <http://insti.physics.sunysb.edu/AMosaic/>

#### **DaFTP**

If you love to download files using FTP (File Transfer Protocol)

then you can't go past DaFTP; it's a great FTP client with an intuitive GUI rather than the boring command line interface offered by UNIX shell accounts. DaFTP is available for anonymous FTP from <ftp.warped.com> in the /pub/amiga/DaFTP directory.

#### **GrapeVine**

If IRC (Internet Relay Chat) is your game, then GrapeVine is the way to go. GrapeVine has a very intuitive interface and is extremely easy to use and set up. I think it's the best IRC client on any platform! GrapeVine is also available for anonymous FTP at <ftp.warped.com> in the /pub/amiga/grapevine directory.

#### **GRn**

GRn is a Usenet Newsreader, again with a pretty interface. It's available on Aminet in the comm/news/GRn-2.1lha directory.

#### **GUI-FTP**

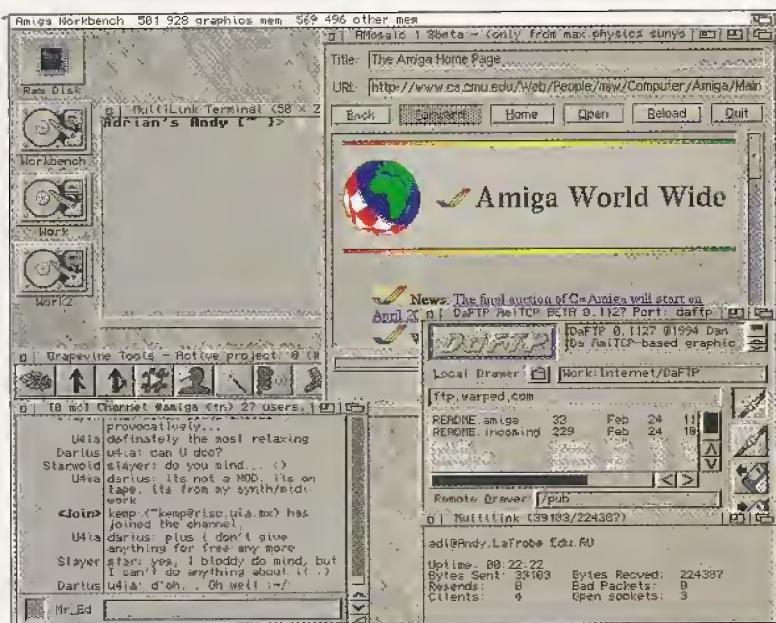
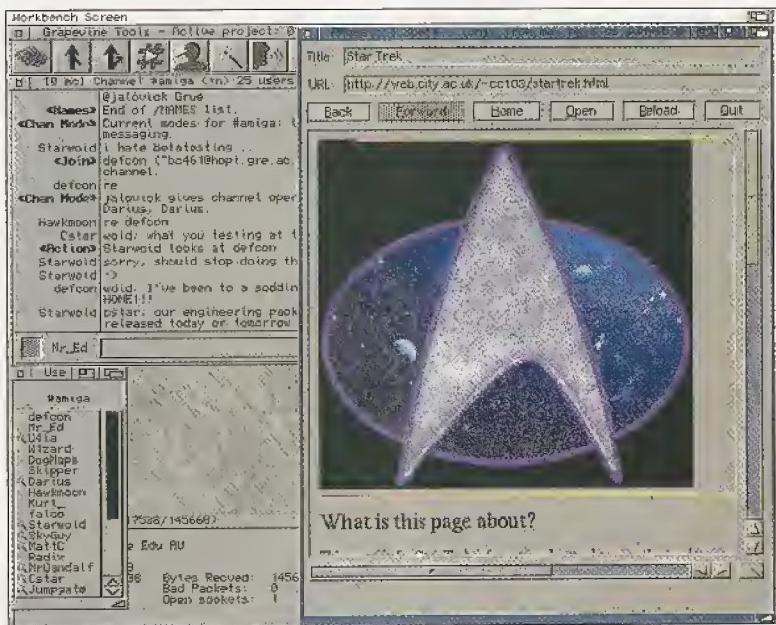
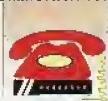
Although I much prefer DaFTP, GUI-FTP is another GUI based FTP client and it works with MLink. GUI-FTP is available on Aminet in the comm/tcp/GuiFtp.lha directory.

#### **AmiTCP-Telnet**

If you have AmiTCP installed, you will find that its Telnet client works, so you can log onto other servers just as you would from your normal UNIX account.

**It's not a humungous list, but these are the essentials.**

So where's the Finger, Gopher and talk clients I hear you yell? Unfortunately, my experiments with various other clients proved unsuccessful, but this doesn't mean you can't use them (or test a few yourself). Included in the MLink



archive is a modified version of AmiTCP's Napsaterm. Napsaterm is a VT100 emulator and rlogin client, so you can go back to using your UNIX shell and use the clients installed on your server.

Once you've configured MLink appropriately and set up all your AmiTCP clients, you're ready to surf the net with your new Internet facelift. As always, you will need to run your communication pack-

age (Term, Terminus, NComm or whatever) to dial up to your server; once you've initiated all the necessary login procedures and are facing your UNIX prompt, you will have to set your modem to keep carrier so you can exit your communications package. You can do this by typing `+++` so you can issue commands directly to your modem, then setting `at&d0` to keep carrier, and then `ato0` to return to

your prompt. Now you can safely exit your communications package and run MLink.

When you start MLink it opens a window showing some very important information such as server name (you should already know that!), elapsed time, bytes sent and received, and how many sockets you have open and how many clients are running. If there were any bad packets of data, MLink also alerts you of bad packet errors. Each client opens its own socket, and the more sockets you have open, the slower the clients will run. I also found that MLink's raw data transfer is remarkably fast; even when you have three or four sockets open, MLink's still quite bearable.

I've heard some reports that Mlink occasionally crashes, but I've not experienced such problems in the two weeks of rigorous usage I've given the product. I believe the problems were contributed by the latest beta version of A-Mosaic 1.3; if this turns out to be the case, just stick to good old version 1.2. It's recommended that you have at least 4Mb RAM, especially when you like opening heaps of clients (like me!). Because MLink does not offer all the capabilities of a SLIP connection, you will not be assigned your own IP address, which means others cannot Telnet or FTP into your account.

Before using MLink on your UNIX server, it's a good idea to tell your system administrator about it; unfortunately some system administrators don't approve.

So there you have it folks, Mlink is definitely a product no Amiga Internet shell user should live without - I know I can't! And although it's not a full SLIP connection, \$US15 shareware is a heck of a lot better than yearly subscription to a SLIP provider!



## Survey time!

I think it may be time to start looking at a reader survey. I'm seeing a bit of a trend which I think is worth keeping an eye on. Here in the Aust Amiga echo you've traditionally received many messages accusing you of posting old news, and this is frequently true - but only (in my humble opinion) if the reader has:

1. Access to Email (preferably Internet)
2. Regular access to numerous foreign magazines.

Now, I was reading Amiga Review (along with CU Amiga) for about 2 years before getting a modem and as a mere local reader I found the contents of the magazine as interesting and relevant as the British mag (if not as glossy, etc). The real bonus was the local news and ads.

I don't know what portion of Amiga Review's readers are still modemless but I'd suggest that it may well be the majority (personal feeling).

What I'm trying to say is that when working on improving the magazine content, don't forget those who don't have all the know-how and info sources of these other modemmers. Listen to what's being said online, but also find out from the actual readers en masse.

I'd also like to see some interviews with some of our Australian Amiga personalities. I'd certainly be interested to see a small bio about Andrew Farrell, for one, and interviews with programmers like Jon Potter, Chris Hames and oth-

ers. And how about some stories about the organisations which are using the Amiga?

I think that we've got to try to re-establish the sense of community among Amiga users, which I think has been largely lost.

*Adrian Jenkin,  
via FidoNet*

*Ed: You want a survey - you've got one (in the May issue)! You're right when you say that not many people have modems - and an even smaller slice of our readership uses online information services.*

*We're acutely aware of the distortions of apparent reader opinion that can happen when you use particular methods to gauge what your readers want; the denizens of the Aust Amiga Fido echo would probably be quite proud to be described as abnormal, but even putting a survey in the magazine only gets you replies from the kind of people who fill out surveys (whoever they are...).*

*So we don't set too much stock by what we're told by any one group of people, let alone any individual. If we did, we'd be in a constant frenzy of magazine reconstruction. That said, feedback's always welcome, and contributes to our continuous improvements to Amiga Review's content and look.*

*We did a few interviews in Amiga Review in the olden days and could certainly resurrect the idea; with the Amiga's new ownership it looks like there'll be a few new success stories for us to document!*

## Coverdisk XVIII - The Saga Continues

I love your magazine, but would like to point out a few improvements that could be made.

1) Coverdisk - We all love coverdisks. This would just be a few games, utilities or maybe a

demo or two. MUST be 1.3 compatible. If a coverdisk isn't possible, how about a subscribers' superdisk?

2) Poster - How about a huge big rendered picture from the art gallery?

3) Speed - How come the newsagent gets Amiga Review one and a half weeks sooner than me?

*Sam Haddow,  
Katherine NT*

*Ed: Thanks for the support, Sam. The coverdisk issue pops up again every few months; there are a number of reasons why we don't do it. One, adding a disk to every magazine would mean making them considerably more expensive - disks cost money, duplication costs money, sticking them on costs money and shipping mags with disks also costs more. Two, we already have the Hot PD companion disks; if you want them, you order them, and if you don't, you don't. We sell a lot of them, but not nearly as many disks as magazines. So it would appear that "you all" don't love coverdisks.*

*If we made the companion disks 1.3 compatible, we'd be missing out on 80% of the new utilities and a significant slice of the new games. Not many ECS demos are coming out these days, either; if you want to see the cool new stuff, you need an AGA machine with OS3!*

*The poster idea's an interesting one - again, to actually include it in the magazine would cost money and would leave you with a creased poster with staple holes, but having posters as a call-if-you-want-one proposition as well could work. We'll look into it.*

*We addressed the issue of late sub copies on the subscriber cover sheet a few months back. If you want your sub copies to arrive before the newsagent copies, you have to hold the newsagent copies*

back. We thought we could get the delivery process slick enough that they'd at least arrive at the same time, but it's turned out to be impossible. Some big magazines operate with a lead time of two or more months; in a field that changes as fast as computing we couldn't do that.

So we get sub copies from the printer at about the same time as the distributor, and the distributor trucks them out while we mail them (which takes a day or so to organise), and Australia Post does whatever the heck it likes with them for as long as it feels like, and that's why your sub copy's late.

A subscription to Amiga Review (or PC Review, for that matter) gives you an assurance of getting the magazine, plastic wrapped in your letterbox, for less than you'd pay at the newsstand. And you'll usually get it just a few days later. But, unfortunately, that's it.

### Keeping up with the Joneses

As an elderly member of the Amiga fraternity, I am belatedly writing to express my appreciation of the members of the team which produces the Amiga Review magazine, and who have for some time been sympathetically attentive and helpful to my occasional calls for help on technical matters - my grey matter being literature oriented rather than mathematically adept. Probably because of this fact, my Amiga provides endless opportunities to delve into all sorts of fascinating mental exercises.

Unfortunately, the rapid development of the science of computing is escalating the cost of machines and the huge range of allied equipment to the point where many have to call a halt and make the best of their existing setup.

However, "keeping up" is not necessary, as you would be aware. There are still a large number of

people with early vintage machines who remain enchanted with the range of activities available to them. Bells and whistles very often are only a different, or perhaps an easier way of using the basic potential of a computer.

In this regard, may I suggest that an occasional article be included in the magazine to help those of us who are plodding along in the rear and not altogether competent, even with our older machines?

To return to the reason for writing, I look forward to the monthly arrival of my copy of Amiga Review, and the wide range of articles by knowledgeable authors which keep me in touch with the world of the Amiga. I particularly enjoy Andrew's scholarly approach and Daniel's bright and breezy and sometimes irreverent writing, which is a joy to read.

Bill Povey,  
Frenchs Forest NSW

*Ed: Thanks for the compliments, Bill. We appreciate that most people don't have cutting-edge hardware; fortunately, Amiga software is generally quite friendly to older machines and so anyone running, say, an ECS chipset machine with a hard drive of modest proportions, a couple of megs of RAM and Workbench 2 (this sort of set-up can be bought second hand for under \$1000) can run most new Amiga programs - sure, not as fast or in as many colours as owners of newer machines, but quite useably.*

*We disagree that prices are escalating - sure, you'll spend a fortune if you want to stay on the cutting edge, but when you consider the multi-kilobuck price of the original 256k, 68000 powered floppy-only A1000 would now get you a firebreathing monster with megabytes of RAM, hundreds of megabytes of hard disk space and a processor better than 40 times*

*faster, you can hardly complain about the trend in bangs for bucks. Remember, the computer on your desk is as powerful as the ones which, back in the valve days, some people thought would have to be built in orbit or they'd collapse under their own unimaginable weight!*

*It's the nature of the computer business that everything becomes obsolete very quickly, but the old maxim stands - if your computer does a job today, it'll do it in a year. The problem is, people keep finding new jobs they want done.* □

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Tasmanian Commodore Users Association Inc.  
PO Box 673  
GPO Hobart TAS 7000  
President - Craig Spencer  
Help line (002) 493 236

### QUEENSLAND

Commodore-Amiga Computer Users Group QLD Inc  
PO Box 274  
Springwood QLD 4127  
President - Keith Antoine - Ph: (07) 300 2161

Dedicated Operators of Amiga User Group  
PO Box 159  
Mermaid Beach QLD 4218  
Ph. 61 75 78 5863

Gladstone Amiga Users Group  
P.O Box 16  
Gladstone QLD 4680

Cairns PC User Group  
15 Sabina Close  
Mt Isa QLD 4869  
ph: (070) 548 422  
fax: (070) 546 422

Commodore Computer Users Group Inc (CCUG Inc)  
PO Box 274  
Springwood QLD 4127  
Meetings - Held first Tuesday of each month at St Lawrence's College  
82 Stephens Road, South Brisbane  
President - Keith Antoine  
Secretary - Barry Benyon ph. (07) 290 1521

### NSW

East Coast Amiga Inc.  
PO Box 344  
Gosford NSW 2250  
President - Dick Bridge - ph. (043) 23 2179

A.M.I.G.A. (A Macarthur Interest Group for the Amiga)  
President - Norbert Peter Feist  
Ph. (02) 727 5596

Commodore User Group  
P.O Box 409  
Curtin N.S.W 2605  
ph: (06) 281 2714

Muswellbrook Combined Computer Club  
President - Olly Jarman, (065) 411 470  
Secretary - Jan Hickey (065) 433 740

Singleton Computer Users Group  
60 Gardner Court  
Singleton Heights N.S.W 2330  
ph: (065) 731 044

Southern Sydney Commodore User Group  
President - Steve Perry ph. 02 528 6117

Tuggerah Lakes Commodore Users Group  
PO Box 659 Toukley NSW 2263  
Meetings - Wyong High School Library, Alison Road  
Wyong. First and Third Thursday of each month at 8pm.  
Ph. (043) 922 567 Bill.

### VICTORIA

Computor Amiga Users Support Group  
PO Box 7014  
Karingal Centre VIC 3199  
Ph. (03) 789 1906

Emerald Mines Club  
P.O Box 32  
North Geelong VIC 3215

Great Valley Products  
1st Floor, 257 Hawthorn Rd  
Caulfield North VIC 3161  
ph: (03) 532 8553  
fax: (03) 532 8556

### WESTERN AUSTRALIA

Amiga Users Group of WA Inc.  
PO Box 595  
Cloverdale WA 6105  
President - Bill Sharpe-Smith (09) 362 3539  
General meeting - 2nd Tuesday every month. Newsletter - Augment

### SOUTH AUSTRALIA

S.A Commodore Computer Users Group  
P.O Box 427  
North Adelaide 5006  
ph: 296 7761

## AMIGA Review

### Nice try

Tammy Marks of Casino, NSW, was watching the midday movie on Prime, which happened to be "The Preppie Murder". It featured a whole computer shop, with an Amiga box in full view in the shop window behind the actors.

Tammy went on to say "I won't suck up for a free sub because I have seen that it will get me nowhere and just degrade me." Nice try, nice try. But it won't work with just one spotting.

### Music piracy

Somebody who left their name off their letter - a fact we missed at the time of throwing the envelope away - spotted an A1200 on Ten Capital's morning news. In an interview with Tommy Emmanuel about the recent Internet music piracy media beat-up, there was a shot of an A1200 with a 1942 monitor, which we suppose was meant to be in the middle of the three day download you'd need to do with a 28,800 modem to rip off a whole CD. With regular Internet speed from popular sites, a whole CD would probably take about two weeks. But we digress.

Whoever the somebody is then asked if he or she was due any free stuff for the sighting - yes! You've won a NEW CAR! Collectable at any time before this magazine goes to press!

### Ausnet hack

While we're on things Internetty, Stephen Turner was watching the ABC news on April 18th and saw a piece on the theft of credit card numbers from the Ausnet Internet provider. Some Internet consultant/expert type was interviewed, and on the desk behind him was an A1200. Stephen of course went on to beg for a free subscription, and we are of course going on to not give it to him.

The same spotting was also sent in by Ian Ballantyne of Brisbane, Qld, who saw presumably the same guy and same computer on Channel 7's 11 AM program on the 19th of April. Ian claimed first dibs because he rang right after he saw it. However, Ian seemed mysteriously unable to recall the name of the person he talked to, so we're seizing on this and the later date as the excuses we'll use to make sure his requested extension to his current subscription doesn't happen.

Joel Cholakians of Doveton, Vic, also spotted the 11 AM Amiga, and saw another 1200 with a 1940 series monitor on the late night channel 10 news on the 20th, while they were interviewing someone suspected of being the hacker.

### Not Blackadder

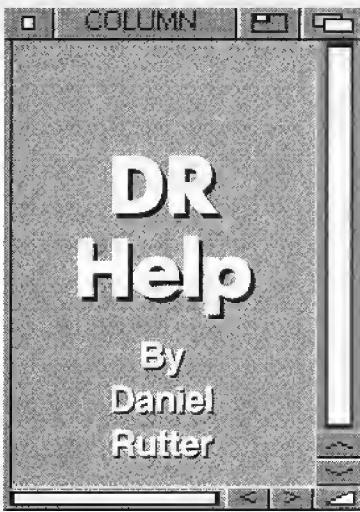
Rowen Atkinson (who specifies he's not the famous one) spotted a credits listing for Amiga graphics in an SBS Anzac day special on the battle of Long Tan. The graphics weren't anything special - probably a DPaint job. Rowen went on to spin the usual sob story about being a poor student far from home blah blah gizza free subscription. Cry us a river.

### Oh dear oh dear

And that was it. It looks like nobody this month came up with anything all that amazing in the spottings department. Hey, nobody said we HAD to give away a sub every month!

Now that all you folks have seen the unchallenging calibre of your competition, feel free to send in your own attempts for merciless destruction at the hands of Amiga Review's equivalent of Bernard King. G'wan, we dare you.





## 1200 expansion questions

At present I'm using an A1200 with 4Mb fast RAM, a 420Mb IDE hard drive and an NEC 3D monitor. I have some questions concerning new 1200 expansions and memory management.

1. What is the difference in memory speed when comparing fast RAM (SIMMS) to Virtual Memory? In particular, how would a SCSI-2 hard drive, set up and connected to a MMU (Memory Management Unit) equipped expansion board perform against SIMMS?

2. Would a SCSI-2 drive connected via the PCMCIA port be usable for virtual memory?

3. Which will run faster, a SCSI-2 from the PCMCIA port or a SCSI-2 linked directly to a suitably equipped expansion board?

I was also hoping to find out what software is currently available to access standard Kodak Photo CD discs (apart from the Zappo drive featured in the October 1994 edition). What type of CD-ROM is required?

I have not missed a single Amiga Review in at least 3 years. Thanks for your committed Amiga support.

*Greg Howden,  
Upwey Vic*

*Dr Help: The speed difference between virtual and real RAM is huge. The access time for your average modern SIMM (which, by*

*the way, stands for Single Inline Memory Module and is just one way of packaging the actual RAM chips for easy handling) is 70 nanoseconds - 70 billionths of a second. The access time for a reasonably quick hard drive, like the one you're running, is around 10 milliseconds - 10 thousandths of a second.*

*Fortunately, thanks to clever coding virtual memory is not the 140,000 times slower these numbers would seem to indicate. But it's still slow. The actual performance does depend on the speed of your hard drive and controller, and on the software you're using (GigaMem is the most popular Amiga package, but there are a couple of freely distributable alternatives).*

*Connecting a SCSI drive via a Squirrel SCSI interface in the PCMCIA port (the only way you can do it through that port at present) will be noticeably slower than doing it with a trapdoor port SCSI-2 controller. This is because the Squirrel just isn't a very fast controller - and it's only SCSI-1, which doesn't really matter unless you start getting into the very heavy hardware or wanting to connect more than seven devices to it. SCSI-2 devices work fine on SCSI-1 controllers, and you can use any hard drive for virtual memory.*

*For playing with Photo CDs, you need a Photo CD compatible drive, preferably with multisession compatibility as well. These days, this means just about every drive. Multisession allows you to use Photo CDs that have been written to several times - if you don't have it, you can only access the first batch of images.*

*There are a number of programs that can deal with Photo CD discs - if you get the Asimware CD filesystem, a commercial product that you could get bundled with your drive, you'll also get a decent*

*Photo CD loader and converter supporting all resolutions. All the big image processing packages also load Photo CD.*

## Upgrading an A600

Congratulations on the magazine - I've just subscribed. keep up the good work!

I own an A600HD with a 120Mb drive, with Kickstart and Workbench 2.05.

1. Do all A600s and A1200s come with the 2.5 inch IDE socket and mounting bracket for an internal HD?

2. While installing my new hard disk (the old one was the original 40Mb), I noticed that the only chip on the motherboard in a socket (not soldered directly to the board) had these markings:

9230  
MX23C4100-1006  
c1992 COMMODORE AMIGA  
V2.05 (37.50) 391304-02

Am I correct in thinking that this is the Kickstart chip? Do I need a 2.1 chip to run Workbench 2.1? Does the Datatypes capability come with 2.1, and where can I get the disks and manuals - there don't seem to be any in stock in WA. How much is it likely to be?

3. Will the OS 3.1 chip fit in my A600? Is it worth the money?

4. I've seen the Squirrel Fast PCMCIA SCSI Interface advertised, and was wondering - can any extra memory be fitted to the Squirrel? Is there anything else that uses the SCSI interface other than CD-ROMs, HDs and scanners?

*Ian Colson,  
Edgewater WA*

*Dr Help: 600s and 1200s normally have the hard drive bracket - but if the machine came with no drive, it might not have had a*



bracket. There were about a billion brackets for sale at the Commodore Australia auction in one big box, which someone snapped up for a few tens of dollars, so if you're short a bracket there are hundreds of them out there... somewhere...

The socketed chip is indeed the Kickstart, and you'll be pleased to know that you don't need to upgrade it to use Workbench 2.1, which is just a software upgrade. But, as you've noticed, you'll have to look high and low to find a 2.1 upgrade pack. If you can find one, it'll set you back maybe \$100, if that. And you can't fit the Workbench 3 ROM, so forget that idea.

You can't fit any RAM to the Squirrel. And the only other common type of hardware that uses SCSI, if you don't count removable drives, is tape backups.

### CD Confusion

I and a few of my associates are confused by the ads in Amiga Review about CD-ROM drives and their use with the Amiga.

A recent visit to Hong Kong indicated to me that the future of the floppy disk is anything but secure - it was almost impossible to find software on floppy for Amiga or PC.

The current Amiga Review's full of references to caddies, double and single spin and so on - what's it all mean?

The most confusing issue is what goes with what - A500 CD-ROMs plug in the side, A2000 ones go in the SCSI port... what about a bit of a steer?

**R. W. Atwood**  
*Secretary, Bundaberg  
Commodore-Amiga Computer  
Users' Group*

*Dr Help: The only Amiga software I've seen on CD so far is PD and shareware stuff, and*

*CD32/CDTV titles. But you're right about the IBM situation - because CDs are far cheaper, more convenient and faster than a mountain of floppy disks, they're becoming very popular indeed.*

*Now, a quick breakdown on CD-ROM jargon. The "spin" thing refers to the speed of the drive, and you can also say "speed" instead. Single spin drives transfer 150 kilobytes per second, and are the slowest you can get; nobody makes them any more, and if you find one it'll be dirt cheap. Double speed drives are 300K/s, the old standard; triple speed drives are 450K/s and quite rare, and quad speed is the current fast standard and shifts 600K/s. NEC have recently come out with a sextuple speed drive they thankfully call the 6X, and that moves a mighty 900K/s.*

*Caddy drives keep their discs in plastic holders - the Amiga CDTV takes caddies. On the plus side, a disc in a caddy is hard to damage. On the minus side, you need a lot of caddies or you'll be shuffling discs in and out of them all the time, which increases the chance that you'll scratch one - and CD-ROMs are a lot less tolerant of scratches than audio CDs.*

*The other way to load discs into a CD-ROM drive is with a tray, like the ones on audio CD players. There's more dust and more chance of damaging the disc, but it's more convenient.*

*You'll use a SCSI controller for just about any Amiga CD-ROM drive - you can use one of the cheap Tandem IDE controller cards if you want to use a cheaper IDE CD-ROM (or you can try to get it working from the built in A1200 or A4000 IDE controller), but if you've already got a SCSI controller, as most serious Amigans have, it's cheaper to get a SCSI drive.*

*A500 SCSI controllers go in the*

*left side expansion port. A2000 and A4000 ones go in the internal expansion slots. The A3000's got SCSI built in, but if you want a faster controller (not necessary for CD-ROM) you can put a card in a 3000 too. The A1200 can take a SCSI interface gizmo in the PCMCIA port on the left side, or for more speed (again, lost on CD-ROM) you can use one of the trapdoor expansion boards with a SCSI option, which put the SCSI port in the extra panel hole at the back right corner.*

### CDTV questions

I recently purchased a CDTV, with keyboard, infra-red joypad and an OLD Commodore floppy drive. I'm led to believe that the CDTV has 2Mb chip RAM, some provision for a hard drive and uses WB1.3 ROMs. Am I correct?

Can I fit Workbench 2 ROMs to the CDTV?

Can I fit a 40Mb Quantum SCSI hard drive - and if so, how?

Can I get a mouse for the CDTV?

Can I "Parnet" the CDTV to my A2000 and use the CD drive as a drive for my 2000?

Could you tell me if anybody might have copies of CDTV manuals, etc?

*Greg West,  
Calwell ACT*

*Dr Help: The CDTV has 1Mb of chip RAM. You can put a hard drive into it if you get a CDTV SCSI interface card; your old Quantum drive should work fine, but you won't be able to mount it inside - only a 2.5 inch drive will fit there.*

*You can plug a mouse into a CDTV; there was a wireless model sold by Commodore, and another way of doing it is to scare up a CDTV trackball such as the one Andrew Farrell owns and prizes,*



which has a couple of standard nine pin sockets on the side and communicates with the CDTV via infrared or cable. The trackball itself, of course, can replace a mouse.

You can't upgrade a CDTV to Workbench 2, but you certainly can Parnet it to another machine.

### A500 tweaking

I have recently been upgrading my A500. I have an 8362 Denise chip and want to upgrade to a Super Denise 8373; is it worth it? What advantages are there? Will most of my 1.3 software work?

I have a Fat Agnus 8370 and want to upgrade to a 2Mb 8375B. Can this be used on an A500, or will I have to get a 1Mb 8372A instead? What advantages are there in getting this? Is it worth it? Will my software work with it?

M. Leung,  
Marrickville NSW

The Super Denise will let you use super high res and productivity graphics modes. Super high res isn't very useful - it lets you do 1280x256 or 1280x512 interlaced without overscan and the only real application anyone's found for it is video titling.

Productivity is better - it's 31.5kHz instead of the usual 15kHz, and gives you a flicker free high resolution display - in only four colours from a limited palette. But hey, it's the only way you're going to get flicker-free high res from your machine without a flicker fixer. Of course, you need a multiscan or VGA monitor to view 31.5kHz modes, and a VGA monitor won't work with 15kHz modes. Virtually no old software should have a problem with the Super Denise.

You can't easily fit a 2Mb Agnus to a 500. There are 2Mb boards and hardware hacks to get one in, but it's inelegant and if you

need 2Mb of chip RAM you should go to a better machine anyway, because applications that need lots of chip RAM also need lots of storage, processor speed and other RAM.

Fitting a 1Mb Agnus is not nearly so tricky, though; you just plug it in and do a couple of minor modifications to your motherboard so that a 512K RAM expansion in your trapdoor port becomes the other 512K of chip RAM.

If you're not confident with hacking around inside your machine, turn the job over to someone who is (the usual disclaimers apply - if you electrocute yourself or toast your computer, I have no interest in your predicament). If you don't know how to open your A500, don't do this.

First, physically putting the new Agnus in requires taking the old one out, for which you need either a PLCC extractor tool (available from electronics stores) or a small pointy object like a jeweller's screwdriver and patience. Make sure you put the new one in so the bevelled corner of the chip is in the same corner of the socket - the two Agnuses don't have the writing printed on them the same way around, so don't use that as a guide!

Find the jumper pad labelled JP2 (between the CPU and the Kickstart ROM) and cut the trace between the bottom and centre pads with a sharp knife. Solder the top and centre pads together.

Now, if your A500 has a Revision 5 motherboard (the revision number's printed on the board), find the RAM Expansion Bus Connector, labelled CNX. Pins 1 and 2 are on the bottom row and pins 55 and 56 on the top row. Count up from the bottom (by twos), and locate Pins 41 and 42. About 1/8" to the left is a plated hole with a trace which runs straight up, parallel with the white line describing the

CNX connector outline. This trace connects pin 32 of CNX to pin 32 of the Gary chip. Cut it. Be careful not to cut the other trace which runs parallel to this trace - the other trace may be under the printed outline of the CNX connector.

If your A500 has a Revision 6 board, all you have to do is locate the JP7a jumper, in the same location as the abovementioned trace, and cut the connection between two of the three pads.

Again, if you've got an old Rev 5 A500, you now have to do something more annoying. Pin 41 of the new Agnus has to be out of contact with the socket terminal, which for the Rev 5 means you have to put a sliver of plastic in between it and the socket (fiddly but most elegant) or bend the connector pin in the socket out (ugly but easy - you can grab onto it with the hook on the end of the abovementioned PLCC extractor which I recommend you buy). You can wire in a switch to toggle between PAL and NTSC modes if you like, which can be VERY fiddly.

By the way, the pins are numbered counterclockwise, starting in the middle of the top edge, when the bevelled corner is at the top left. The bevelled corner has pin 11 on one side and pin 12 on the other. There are 84 pins in total.

Again, Rev 6 owners are better off; just cut the trace between the pads of jumper JP4, or wire a switch to them for toggling video mode.

Having 1Mb of chip RAM is useful - you can open more screens at once with more colours, digitise longer sound samples, and work with bigger pictures and animations. Some old software does fail to work with 1Mb chip RAM, but nothing remotely recent does. And remember - if you're not confident with poking around inside the machine, get someone who is to do it.

□



# What's new in modems?

By Daniel Rutter

In recent months every computer magazine - and rather a lot of magazines that don't have anything to do with computers at all - has leapt joyously onto the information superhighway bandwagon.

Thousands of column inches have been devoted to explanations and exclamations of and on what the new, on-line world will do to and for you. Even we have given in to temptation and run a few articles on the subject.

But one thing we're acutely aware of, and you probably are too, is that most people can't get within a mile of online information services. Why not? Simple - they don't have a modem.

We ran a big feature on modems more than a year ago, and everything in it still stands, except for one important point - 14,400 Bps is no longer the highest speed.

19,200 Bps modems have been around for some time, but they've never got too popular, because they're not that much faster than 14,400; 19,200 has traditionally been a bonus that comes along with more spectacular features like voice technology.

The big news is that 28,800 Bps modems are now commonly available, and reasonably priced - about a hundred bucks more than a 14,400. Australia is no longer the comms backwater it used to be - we now get the new technology approved and perfectly legal reasonably quickly, with a wide choice of brands and decent prices.

Brilliant, I hear you say. Pay a quarter more, get twice the speed! Where do I sign?

## The downside

Unfortunately, it's not as simple as it sounds (there's a first). You see, a number of companies jumped the gun with their 28,800 models. Before the official V.34 protocol was ratified by the CCITT (see Modem Mumbo Jumbo at the end of this article for an explanation of this and all the other jargon), there was an unofficial, less well defined protocol which the CCITT called V.fast (or V.FC).

All of the modems produced before V.34 are V.fast; some are upgradable to V.34, and some 28,800 modems support both sys-

tems. But V.fast is not compatible with V.34, and vice versa.

If you're trying to connect the one to the other, forget it; the best you can hope for is a 19,200 Bps V.32ter connection (better than a poke in the eye, but not what you paid for), and if one of the modems doesn't support even that then welcome back to 14,400, have a nice day.

As things stand at the moment, most 28,800 equipped online services are using V.fast. At the time of writing, Australia had 196 bulletin board systems with V.fast modems, against a lousy 13 with V.34s. The big boards are starting to get V.34s to go with their V.fast, but it won't happen overnight.

If you've got to have the new technology now, get a modem that supports both standards, or one that can be upgraded from V.fast to V.34. Alternatively, you could sit back and see if V.34 takes over, as it ought to since it's rather more official. Remember, the lovely thing about computer hardware is the longer you prevaricate, the less you end up paying.



## Special Amiga considerations

28,800 Bps is a big leap from 14,400, and you need to set the serial port speed higher accordingly. The first serial speed available to you above 19,200 Bps is 38,400 Bps, which gives you some headroom for compressed data.

You see, the serial port speed sets the maximum speed at which the modem can pump data to the computer. Now, a 28,800 Bps modem can only transfer 28,800 bits every second to another 28,800 Bps modem, but with compression this 28,800 Bps can, theoretically, blow out to 115,200 Bps being sent down the serial cable.

This won't happen, for two reasons. The minor reason is that flow control and framing data - stuff modems use to tell each other what they're sending and when - reduces the actual user data transfer rate. The major reason is that only a file composed of lots of repeats of just one character will compress to the maximum four-times rate. Plain text will compress quite well, but where the transfer rate really matters is in uploads and downloads, and just about anything uploaded or downloaded will already be compressed; the modem compression will make little difference.

But why not just set the modem speed to 57,600 or even 115,200 Bps, just in case? Go ahead, try it. You'll see.

Unfortunately, the basic Amiga architecture, while it is a masterpiece of multitasking and autoconfig design, is not perfect. It has a good serial port built in, but not a great one by modern standards, and pushing it to 38,400 is approaching the redline. You can do 57,600 in a pinch, but even then a standard Amiga starts dropping characters, as data comes in faster than the computer can suck it out of the serial port buffer.

If you're using a 68000 based

Amiga (standard A1000, A500, A600, A2000), even 19,200 will put a big strain on the machine. It varies depending on the priority you assign your comms program to and the serial device you use (baudbandit.device is a good low overhead basic serial device; you can find it on any decent BBS), but a 14,400 Bps download will, generally speaking, make a 68000 machine crawl, and a 28,800 transfer will probably get a lousy transfer rate, as the processor stumbles to keep up with the data flow and lots of resends happen.

Owners of accelerated machines will have less trouble, but while you're doing a high speed transfer it's likely that anything that gloms processor time - accessing hard drives with some controllers, for example - will trigger transfer errors. The faster you set your serial, the touchier it'll be.

If you've got a decent third party serial board, you can forget these problems. High speed serial ports with big buffers bring you up to speed, so to speak, with high powered IBM compatibles. Gee, it only took 'em ten years.

## What the heck is a voice modem, anyway?

Essentially, a modem with "voice capability" can handle voice messages as well as digital data, so it can be used as an answering machine, storing messages in its own memory or on its host computer's hard drive. Sophisticated software lets you dial in from somewhere else and hear your messages, just as with a good answering machine, and spiffy products like Netcomm's Electronic Secretary (for the PC, I'm afraid) even do things like letting you store faxes along with your messages, and redirect them to a fax machine anywhere else. The voice recording part, though, is what most people mean when they talk about voice

modems. But "voice" covers a collection of associated technologies, too.

Voice/data switching is the simplest way of integrating speech and data. It lets you use the one line for voice and data, but not at the same time. Recent modems and fancy terminal programs (for computers other than the Amiga) are providing more elegant ways of switching between voice and data, but you can do it with any modem.

The nice new modems, using what's called VoiceView, can automatically establish a connection in the middle of a regular phone call, when the callers want to exchange some data. The file's sent and the modems switch back to voice, without any mucking about on the part of their users.

If you don't have a VoiceView modem (only Hayes makes 'em so far), you have to do it the harder way. To go from voice to data, run terminal programs at each end, send an ATD (dial) command to one modem and an ATA (answer) to the other, and hang up the voice phones. To go back to voice, just pick up the phones on the modems and hang the modems up by sending an ATH. The precise handling of the switching varies depending on whether you've got your phone in parallel or connected to a phone out on the back of the modem, but it's not rocket science in any case.

Simultaneous voice and data modems are way more sophisticated. They allow you to talk to someone as you exchange files - an excellent remote conferencing system. The transfer rate isn't, of course, as good as it would be without the voice data being sent too, but it's pretty impressive anyway. These modems come in digital and analog flavours; the digital ones compress the voice data, allowing higher transfer rates, but they cost more. Neither type is supported by any Amiga software.

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## Common CCITT V Series Standards

**V.21** - 300 Bps modems for dial-up lines.

**V.22** - 1200 Bps duplex modems for dial-up or leased lines.

**V.22bis** - 2400 Bps duplex modems for dial-up and leased lines.

**V.32** - 9600 Bps duplex modems for general and leased line circuits.

**V.32bis** - 14,400 Bps duplex modems for general and leased line circuits

**V.32ter** - A further extension of V.32bis, which added 19,200 Bps communication.

Not supported by many modems; top of the line 14,400 units sometimes have it, and 28,800 modems can generally fallback to it. Sometimes catchily (but incorrectly) referred to as V.32terbo.

**V.34** - The official CCITT 28,800 Bps standard, only recently ratified.

**V.42** - Error-correction scheme (the actual system is called LAPM, Link Access Protocol for Modems) with MNP-4 fallback.

**V.42bis** - Data compression technique; better than MNP-5.

### NetComm Pocket Rocket PA

Just when we thought the SimpleModem was the smallest you could get without getting into stratospheric prices and PC slot interfaces (those little card slots on portable machines), along came the Pocket Rocket. Specifically designed for mobile use, the Pocket Rocket's a bit smaller than a pack of cards, and is powered either by

a little plugpack or by a 9 volt battery, which when fitted with a special adaptor clip just plugs right into the back of the modem. Of course, to get this small you have to make some sacrifices. You only get 14,400 Bps operation (with all the other trimmings), and there's no status LEDs. But c'mon, don't YOU want a modem you can lose down the side of the couch?

*Netcomm (02) 888 5533. \$399*

### Dynalink 1428VQE

Dynalink's ads admit what a lot of people think - all modems are pretty much the same.

But the ancillaries can be nice - Dynalink's biggest claim to fame is that their modems come with BitWare Lite, an excellent PC comms/fax suite that knocks the socks off the cutdown kiddy software you get with many modems. For Amiga users, the long

warranty period is the big plus. Dynalink are selling their 1428VQE a bit short; behind the boring name lurks a modem with V.34, V.Fast, all the other greebles and a nifty case design to boot. Well worth a look, though you'll have to find a wobbly table to prop up with the useless PC software.

*Dynalink 1-800 653 962. \$499*

### Netcomm Automodem E34F

Netcomm's an Australian company that builds solid, stylish, practically indistinguishable units that inhabit the higher price bracket. The one we tested was the E34F, which is Netcomm's standard V.34 modem (no V.Fast compatibility) with all the usual knobs on, including fax. This is Netcomm's cheap V.34 modem - it's got the same

little flip-down button-covering door on the front as the other models, but there's nothing behind it but a few holes, and it also lacks the passthrough line port on the back for plugging in a phone. NetComm do some fancy bundling deals for PC users, but you can buy the modems separately too. The E34F's not the cheapest at \$599, but it's a good deal for what you get.

*Netcomm on (02) 888 5533.*

### Simplemodem 288f

Those cunning boys at Simplecomputing have done it again - we thought it was pretty remarkable when they shoehorned 14,400 Bps guts into one of their sleek little cases (which, nonetheless, still have a decent suite of indicator lights) - now they've got V.34 28,800 Bps operation into one too! The only thing wrong with the Simplemodems is that their built-in speaker is

practically inaudible. There's no hole in the case to let the sound out, so you need a stethoscope if you want to do audio debugging. Otherwise, this is as much modem as anyone else is selling in a much smaller box, and great for travellers, people with little desk space or just plain gadget hounds. With modem/software packages starting at \$479, you can't go wrong.

*Simplecomputing on (02) 894 9444.*



## The best of the rest...

Here are a few other modems worthy of note. We didn't get the chance to test them for this comparison, but you should check them out as you shop around.

### Maestro Executive 288FM

Maestro's an Australian company that has a record for producing decently built gear at good prices - Maestros were cheap long before Netcomm and Banksia dropped their prices. The 288FM is the company's current flagship model, and it ditched the old trapezoidal case (that looked pretty swish ten years ago...) for a sleek, curvy box that can sit vertically on a stand if you want. It's a V.Fast modem (no V.34 as yet) with all the usual features, and sells with the usual average software for \$499.

Contact **Maestro** on (02) 242 9755.

### US Robotics Courier 28,800

US Robotics modems only got Austel approval comparatively recently, so you haven't been able to legally use them in Australia for very long. Lots of people bought them from the States and used them illegally prior to this, because they were good and cheap, if, ah, funny looking. Oh, all right, they look like a Stylophone, OK?

Unfortunately the approval process seems to have jacked up the price - one of the USR Sportster 14,400 modems will set you back an uninspiring \$449, while the V.Fast/V.FC Courier (some have both standards, older models are easily upgraded) cost a whopping \$999. Shame.

Contact **Data Direct** on (03) 210 3330 for more information.

### Spirit Viper

The Spirit brand was put under something of a cloud by the old Spirit II 14,400 modem, which had a rather individual take on the communications standards it was supposed to adhere to and wasn't even especially cheap.

But the Viper has redeemed the marque, with a Rockwell chipset like most of the other modems on the market and excellent V.34 compatibility.

It'll cost you \$599, but it's a decent unit; you can get Spirit modems from lots of places but try **Dick Smith Electronics** on (02) 888 3200.

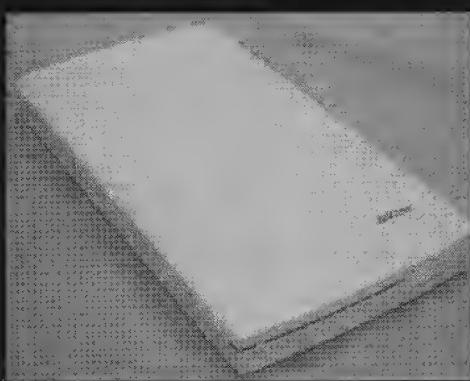
### MicroFax range

Microfax is another Australian company, a new venture that produces a range of models at different prices and speeds that all share some innovative features. You can plug a printer cable straight into the modem with no PC, wire the modem to the phone line and receive faxes.

You can store up to four megabytes worth of faxes (15 pages) in the Microfax unit, for later upload to a computer or printer. You can easily send text faxes from a PC without fax software, by just sending them straight to the modem with the word FAX and the number at the beginning.

You can have the Microfax redirect stored faxes to another number. And they do fax and data switching as well.

We hope to have a review of a Microfax soon; in the meantime, call **Microfax** on (02) 918 3099.



# modem mumbo jumbo



**Asynchronous** - The old system for sending data, originally developed for use with the telex system. In asynchronous transmission, each data character (byte) is bracketed with control bits - a start bit and a stop bit, as they're called. This is less efficient and more prone to errors than synchronous transmission (q.v.), but it's easier to implement.



**Baud rate** - From the name of the French inventor J. M. Emile Baudot, baud rate is the number of discrete signals or data symbols transmitted per second. In Baudot's day (he died in 1903) baud rate related to telegraph transmissions, but it's survived as a measure of modem speed.



Baud rate is frequently used as if interchangeable with Bps, but it's not. If the modulation system a modem uses sends more than one bit of data in each signal it sends, it can have a lower baud rate than its Bps. For example, early 1200 and 2400 Bps modems both operated at 600 baud, but the 1200 Bps modem signals each carried two bits, and the 2400 Bps signals had four bits each.



**Bps** - Bits per second, the unit used for describing modem speed. Contrast "baud rate".



**CCITT** - The Comite Consultatif International de Telegraphique et Telephonique, or International Telegraph and Telephone Consultative Committee, for non-French speakers. This international organisation, a division of the United Nations' International Telecommunications Union, exists to recommend global standards for communications. The CCITT V.xx standards allow makers of modems to be sure that their products will work with those from other manufacturers - provided both

parties have interpreted the standards the right way. The second version of any CCITT standard is always called V.xx bis, where xx is the standard number; the third version is always called V.xx ter. Why? More French.

verage consumer. But with a leased line system you can use modems that put out signals that aren't allowed on the ordinary phone system.

**MNP** - Microcom Networking Protocol is a communications protocol developed by the Microcom company and used by lots of other people. Microcom have, so far, come up with five classes of this system. MNP class 1 (abbreviated MNP 1) sends data one way at a time. MNP 2 sends data both ways at once. MNP 3 achieves slightly faster transfers, by not sending start and stop bits between modems. MNP 4 sends larger blocks of data on cleaner lines, which increases throughput, and drops back to smaller blocks on noisy lines so that when errors happen less data will have to be sent again. This tactic is also used by the good file transfer protocols, like ZModem.

**Null modem cable** - A cable wired so that when it's plugged into the serial ports of two computers, they both think they're plugged into a modem with a pre-existing connection and can exchange information, often at higher speeds than real modems can manage.

**Protocol** - A protocol is the set of rules by which computing devices exchange information. In comms parlance, protocols relate to the low-level systems used by modems to encode information, and to the higher-level systems (transfer protocols) used when uploading and downloading files.

**Synchronous** - The newer system for sending data. In synchronous transmission, each data character (byte) follows straight on from the last, with no time-wasting control bits tacked

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on. This is faster and less error-prone than asynchronous transmission (q.v.), but it requires the sender and receiver to use exactly the same timing, and is hence harder (read more expensive) to implement.

**Upload** - To send a file from your computer to another computer with a modem, or over a null modem cable.

**V.fast** - The preliminary name for the 28,800 Bps modem standard, used while the standard was in development and adopted by a number of manufacturers as a sort of unofficial pseudo-standard before the CCITT ratified v.34. V.fast (also known as V.FC) is not compatible with V.34, though some modems support both standards.

**XModem** - An old transfer protocol, which doesn't allow auto-starting, auto-resume or filename sending like ZModem (q.v.). It survives only in antique machines, braindead comms programs (like Windows Terminal) and cheap baby computers.

**ZModem** - The de facto standard protocol for transferring files between computers with modems. ZModem supports a load of features to make your online life easier - obvious stuff, like sending the filename so you don't have to type it in, but also things like batch sends (you don't need to start a new send for every individual file) and auto-resume (if you only got part of a file for some reason, the transfer will start again where it left off instead of deleting the old file fragment and starting again). All bulletin boards worth bothering with support ZModem, as do Internet service providers who give you shell accounts.

# AMIGA Review

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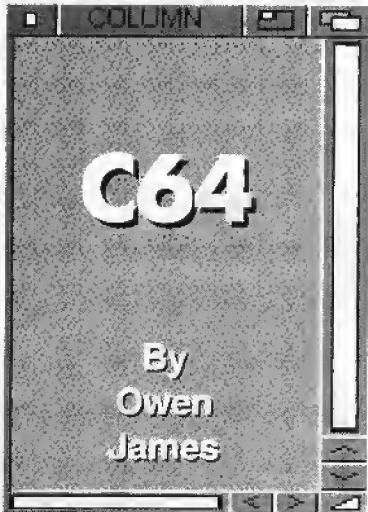
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By  
Owen  
James

The Albury/Wodonga Commodore User Group is looking for new members. Half their membership is C64/128, but they'd like to boost their numbers. AWCUG is now catering for "distance" members, and so far has members from throughout NSW, Victoria and SA.

The club publishes a monthly newsletter, "Borderline", and meets the first Tuesday of each month. They maintain a very extensive public domain software library. If you'd like some information for AWCUG, or would like to join, please contact the President, Robert Lord, on (060) 59 1469.

### Function keys

Using the C64's function keys in your own programs is easy. The C64 treats its function keys like any other keys; all your program has to do is "listen" out for them.

The secret is the ASCII/CHR\$ codes. All characters you can use on the C64 are assigned a value in the 64's version of the ASCII set. For example, the letter A is also known as 65, B as 66 and so forth.

You usually check GET\$ and INPUT\$ by comparing with characters: IF A\$="A" THEN GOTO, but you can also use IF A\$=CHR\$(65) THEN GOTO - it's just more convenient to use "A".

Although it is possible to use an unusual looking character to represent a function key in a similar fashion, for this example we're going to use the C64's ASCII code. ASCII codes for F1, F3, F5

and F7 run from 133 to 136 inclusive, while F2, F4, F6 and F8 (the shifted-function keys) run from 137 to 140. So how do we use this?

The best way is through a small subroutine. This routine will wait for the user to press one of the function keys, and then print the name of the key pressed. Not very useful, but it serves as a good example.

```
10 GET A$: IF A$ = "" THEN
  20 A = ASC(A$)
  30 IF A < 133 OR A > 140 GOTO
    40 ON A - 132 GOSUB
    40,120,140,160,
    40,180,200,220,240
  50 GOTO 10
  100 PRINT "F1"
  110 RETURN
  120 PRINT "F3"
  130 RETURN
  140 PRINT "F5"
  150 RETURN
  160 PRINT "F7"
  170 RETURN
  180 PRINT "F2"
  190 RETURN
  200 PRINT "F4"
  210 RETURN
  220 PRINT "F6"
  230 RETURN
  240 PRINT "F8"
  250 RETURN
```

Line 10 continually loops until the user presses a key.

Line 20 converts the value into a raw ASCII value, which is exactly what we need to work with.

Line 30 checks to see if it was in fact a function key that was pressed. If the ASCII value is below 133 or above 140, it obviously wasn't a function key, and the program loops back to the start.

Line 40 is a novel way to break off into various branches of a program. The ON-GOSUB combination means "if the number is a one, go to 100, if it's a two go to 120" etc. By subtracting 132 from the value, the program takes the value back to a range of 1-8. It says that if, after subtracting 132, the number is 1 then do the subroutine at line 100. After the GOSUB is just

a list of line numbers to jump to.

We could easily have said IF A = 133 THEN GOSUB 100, IF A = 134 THEN GOSUB 120, but this would be much longer.

Lines 100-250 just print the pressed function key's name. The RETURN after each line tells the program to jump back to where it left off before it was told to jump to a sub-routine. In this case, that's line 50, where it's simply told to go back to the start. This creates an endless loop.

There are many applications for the function keys. A likely use would be a menu at the start of a program, or a small program to load other programs from disk.

I mentioned earlier that you could use an unusual character instead of checking the result against the ASCII character set. This may be easier if you only want to check for one or two function keys instead of all eight.

To generate these unusual looking characters, which are actually Commodore graphic characters, simply type an open quote ("') and then press the function key you need to listen for. Here's an example application for this:

```
10 GET A$: IF A$ = ""
  20 IF A$= "<press f1
  20, here>" then print "F1 was
  20, pressed"
  20 IF A$= "<press f2
  20, here>" then print "F2 was
  20, pressed"
```

and so on. Obviously this is more cumbersome if you're listening for all of the function keys, but for quick spot checks, it does the job.

That's all for this edition of The C64 Column. Until next month, if you'd like to get in touch I'd love to hear from you. Write to me care of The C64 Column, PO Box 288, Gladesville NSW 2111. Internet users can also contact me at c64@code1.dialix.oz.au.



# Do it yourself home control

By David Boddy

► Have you ever had the stereo playing so loud that you couldn't hear the phone or the doorbell ring? Have you ever tried to find the right (one by three millimeter) remote control button in the dark while watching a movie?

The Amiga has totally eliminated these and many other day to day problems from my life.

## The problem

Several years ago, my stereo remote controls began dominating the coffee table.

You always seem to have the wrong remote in your hand, so I rushed out and bought one of those programmable remotes and taught it the codes from the other remotes. Problem solved. Well, al-

most. There may be only one remote, but with over 100 buttons each the size of a Coco Pop, you also need 20/20 night vision, and a finger that tapers down like a ball point pen.

## The solution

MediaPhile (MP) has been around for a several years now. For the benefit of those unaware of its function, here's a brief rundown.

MP lets you digitise infrared (IR) codes from remote controls and send them back out, on command. You can also read timecode from domestic video cassette recorders (VCR's). MP has a library of software for editing and VCR control, but like all great Amiga programs, there's an ARexx backdoor.

After storing all of my remote controls' IR codes on the hard disk - some 300 codes, from Play Tape on the VCR to Volume Up on the preamp, I quickly lost enthusiasm for sending ARexx commands from the CLI to control everything. Hey, this is an Amiga! I want pull down menus and gadgets and nice IFF backgrounds!

It was about this time that I dis-

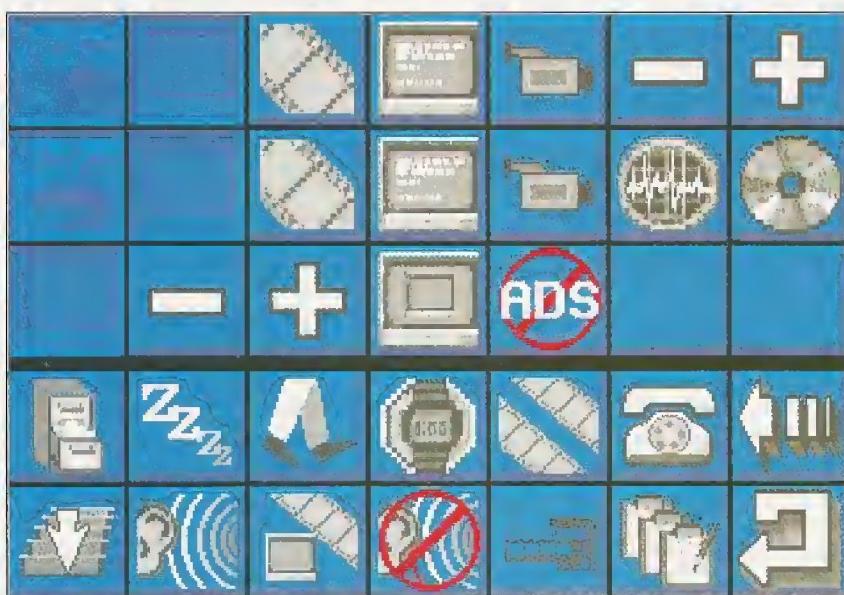


Fig 1. The two top rows control video and audio. The third row is the TV control, since that's what's currently selected.



covered the ultimate programmable Arexx command generator, CanDo. That's right - the intuitive programming language CanDo has great support for ARexx message passing.

Creating gadgets, pulldown menus and hotkeys in CanDo is so easy and fast that I actually stopped using Lattice C altogether. There are always new ideas to implement and bugs to fix, but the software I call Computrol is now at a very usable level.

### How to do it

The first stage was computer control of the stereo and VCRs, to eliminate the remote controls.

At the Boddy residence, all the computer equipment and stereo components live in the study and the lounge room contains only speakers, a monitor and an IR pickup that beams all IR commands to the study. The lounge room TV displays not only the video and TV signals from the study, but genlocked Amiga graphics overlaid as well.

Add an IR cordless trackball in the lounge room, and I've got full computer control of the VCRs and stereo from the lounge room. Just point at the large, easy to see icons overlaid on the TV's picture and click (see figure 1).

I spent a long time designing the control interface and icons so they were easy to use and see. Even in the dark you can read the icons, because they're on the TV.

Cando allows multiple IR commands to be sent with just one mouse/trackball click, so if you're watching the TV and you'd like to keep watching the same show but listen to the audio from the radio tuner, one click can turn the radio tuner on and tell the switcher to patch the new audio source though to the speakers in the lounge room.

If you're controlling the system from the study, no graphics are dis-



Fig 2.



Fig 3. VCR controllers on the study monitor.



*Fig 4. Answering machine on study monitor.*



*Fig 5. Auto event log. Bottom of screen shows duration of shows selected for that day and also for the week.*

played in the lounge, and the study control screen is full of gadgets and icons and 80 column type - a lot more information can be shown on the computer screen (see figures 3 and 4).

The computer could make its own decision and send codes as well, so I made new modules that would let you record TV shows automatically and also show TV programs automatically.

You simply go through the TV guide entering shows of interest to view or record, and log them in a list (see figure 5). A lot easier than programming the VCR. You can also log radio shows. When the time comes for the event you logged, the computer prompts you to Watch, Record or Ignore.

If you say Watch, and you were previously listening to a CD, it not only switches to the show you requested but pauses the CD player as well. When the show finishes, the CD's put back on for you.

Ignore simply lets the event go by; Record's the same as Ignore, but it tapes the event for later. If the Record flag is set in the log screen, this becomes the default.

Computrol saves to disk a log file of any show it records on its tape, and the timecode where it starts and finishes, so that later on you can select shows from the tape, and have them found, cued up and played without any messy manual searching. It even uses the Picture In Picture (PIP) function in the VCR to display the cueing pictures, so that until it's cued you can watch other TV.

From the lounge, all of the computer prompts appear as large video typeface, but an Amiga sound sample also comes through the speakers. I sampled lots of Mel Blanc, so if I hear Daffy Duck talking I know that the computer has a message for me on the TV.

As Computrol grew, it became necessary to install gadgets to let



the computer know where I was - in the lounge room, study, gone to bed, gone out and so on.

If you leave the house, Computrol turns all the stereo hardware off, but keeps track of shows to record and will turn the VCR on, select the TV channel and record the show. After the show has finished Computrol again turns the equipment it was using off.

Most of the dubbing I do is best done while I'm sleeping, so that the equipment's available while I'm up and about. Timecode is read during dubbing, so the computer knows which way the tape is travelling and how fast. If it detects rewinding then the dub has finished, so it waits for the tape to finish rewinding and powers off the equipment.

### Big Brother's watching...

My uncle's a mad D.I.Y. electronics fellow and had finished a whole series of real world interfaces for monitoring temperature and moisture and reading passive infra-red detectors (PIRs) and ultrasonic motion detectors into the control port on a Commodore 64.

By using some of his designs and a few of my own I came up with a circuit board that plugs into the parallel port and reads up to 8 PIRs. The design was constructed in trusty Deluxe Paint (see Figure 6), with the dot matrix printout used as a template to drill the holes in the circuit board before the tracks were etched.

I went searching for PIR sensors and found that most home security places had them from between \$90 and \$180 each. Then I discovered that a lighting shop had a PIR light switch. I bought one, took it home and opened it up. It was the same setup, runs on 12 volts and trips a 5 volt line to earth. There was extra electronics for switching 240V lights, so I removed the unneeded bits and ended

up with a PIR sensor for \$30.

A week later that same lighting store had a sale, so I bought up seven more. They may not be as good as the \$100 models, they may false trip more often, but clever software can eliminate false trips.

Some more CanDo/C programming, and with an IFF representation of the house on screen (see figure 7) the software would log all movement within the house - the basis of a home alarm monitoring system. It even monitors the front doorbell.

If someone rings the doorbell, Computrol pauses the tape you're watching or the CD you're listening to, plays a sound sample through the stereo (random selection of door bell sounds) and returns you to whatever you were listening to.

Just before you leave the house, you tell the computer you're leaving and just click an on-screen button to arm the alarm. It reads the PIRs until it detects no

more movement and then arms itself (smart alarm).

### ...and the phone

The last hardware interface I added was The Answer. It uses a CanDo deck with some hardware to act as an answering machine, and allows you to send line out audio from the stereo down the phone line and bring the audio from the phone line into your stereo or sound sampler. It's fantastic editing your answering machine message with digital cut and paste on the Amiga.

And any message left can also be edited - I started making a directory of hellos so that at some stage if you ring in, your own voice may answer hello. Freaky.

Unfortunately, The Answer needs a sound sampler connected into the parallel port, where my PIR interface was already connected.

With some more C programming I am now able to control the

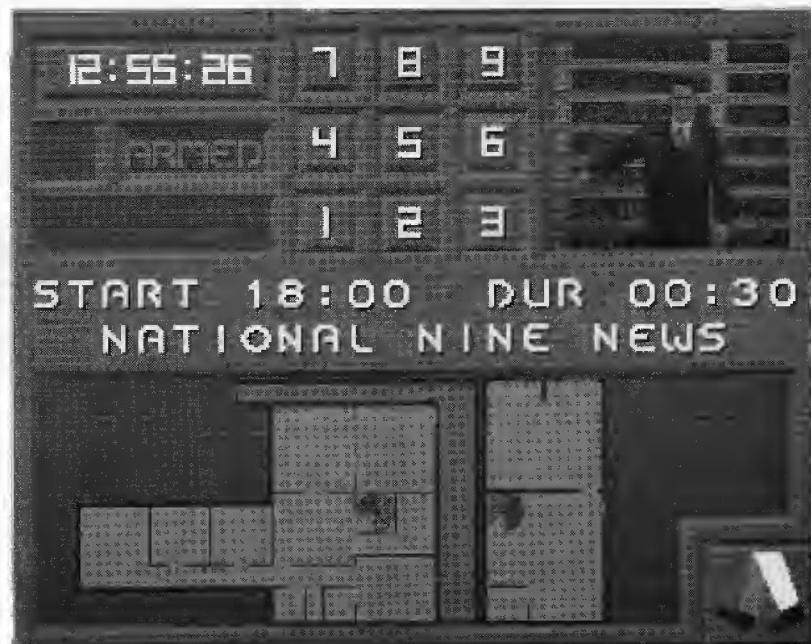


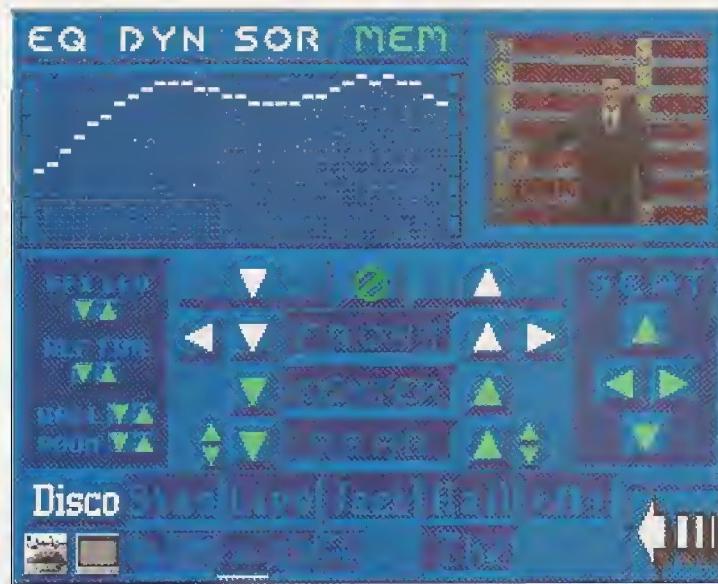
Fig 6. When I've gone out, Computrol monitors the alarm system and records shows. Note the genlocked graphics on top of the VCR's PIP.



entire answering machine and all the PIR's from just joyport 2 (that's only 9 pins).

With The Answer you can also play samples of the tone dial sounds to ring the phone number selected. The alarm system could thus ring me at work (or on a mobile phone) if there's a breakin and the Amiga can give me real time feedback about what rooms the intruders are now in and where they first entered. This has been a very simple look at a very complicated piece of software - there are far too many routines to describe here. But I hope it has given you some insight into the system, and maybe encourage you to experiment in some D.I.Y. yourself.

Where will it all end? Between my graphics and animation commitments there's not much other spare time, but this side project has been a lot of fun over the last few years. I think that the development time compared to the time it will save me is about 1:1, so it's not re-



**Fig 7. Surround Sound Controller - Equaliser and all balancing and volume controls.**

ally a labour saving device. But I use Computrol every day, and it's nice to know when the graphics pressure gets high and I need a music fix, the radio is only an Alt F9 away.

**Contacts:** *The Answer - GSoft, South Australia, (08) 284 1266. MediaPhile - HTV Media, New South Wales, (047) 842 305. CanDo - Desktop Utilities, Canberra, (06) 239 6658.*

□



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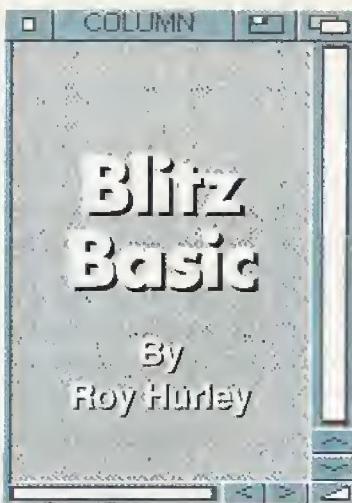
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```

IF (X+1) AND (J+1)
OUTPUT ("B")
LET T=T+1
END IF

```

**PROGRAMMING**

## Life in the ACAR ecosphere

Welcome to this month's Blitz Basic column. This month we'll be leaving the Beginners series of columns and throwing out a challenge to the intermediate programmers out there. This project will provide plenty of interest and scope for enhancement for the advanced programmer, while at the same time being basic enough for beginners to get a handle on and have something meaty to examine.

This month's project is an entertaining look at a simulation application, where we'll be attempting to recreate a fully enclosed environment and stock it with our very own organisms. Yes folks, now is your big chance to oversee your very own little universe full of your very own critters. Your world will be a planet covered with water, inhabited by two sorts of organisms - fish and sharks. In any good universe there are laws of physics, and this one's no exception.

### The laws of physics

The planet is divided up into a square grid, 78 by 26 squares big. Only one organism can occupy each square at any one time. Fish don't move, they simply feed within their square on plankton. There is a random chance per generation that a fish will produce offspring, the baby fish moving into any vacant square adjacent to its parent.

Sharks, however, must eat the fish to survive (oh the horror...),

and must move into the square occupied by the fish in order to consume it. If a shark is not adjacent to a fish, there is a random chance that it will starve to death. If it survives, it moves into a random adjacent square in its search for fish. If a shark feeds, there is a random chance that it will produce offspring, again into an adjacent and vacant square.

And so it goes, the endless passing of time, the ceaseless stream of generations of fish and sharks, a simulation of predator and quarry that is mirrored in our own universe. Having thus defined the rules, it's time to start designing!

### Design time

The most important consideration for this application is the way we store the location of our organisms within our world. A two dimensional array of bytes is the most logical way.

If you're not familiar with the concept of a two dimensional array, think about a chess board. Each of its 64 squares or areas can be uniquely referred to by an x coordinate and a y co-ordinate. So, for example, the white king starts on square 5,8. It's important to understand that 5,8 is just the address or location of the square, and that it contains data; in the example we could allocate a code number for each piece, and a white king might be represented by the number 1.

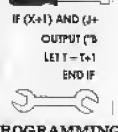
In Blitz terms, the map is stored in a two dimensional array of bytes called `map.b(x,y)`, where x is the first dimension and y is the second. Our map is much bigger than a chess board, at 78 by 26 squares. The data we're going to store in the array is either a 1 for a fish, or a 2 for a shark. So if you want to put a fish on the map 6 squares out and 8 squares down, you'd use the command: `Map(6,8)=1`. This stores the num-

ber 1 within the array. You could then check what type of organism is living in square 6,8 with the command: `org=map(6,8)`, which sets the variable to either a 0 for an empty square, or a 1 or 2 depending on what critter has taken up residence! We're going to display our world by using a simple window and text characters, but there's nothing stopping you from improving this display with graphics and animated sprites. We'll use a Hires screen and a plain window, and represent fish with the character ">" and sharks with "\$", printed in different colours to make the sharks stand out.

### Constants

Before you start coding I want to talk about constants. We're going to use constants instead of variables in a few cases, to make it easier to make little adjustments to the program. The constants include the starting numbers of each type of organism, as well as the rate at which they breed and starve. If you make a change to a constant at the start of the program, Blitz will automatically change every occurrence of the number throughout the rest of the code. This makes it much easier to fiddle about with the settings, and observe the effects on the simulation. A constant is denoted by the # symbol, for example `#pi=3.1416`.

The whole program consists of five functions or statements; I'll go through these in detail later on. At the start of the program, I use the `deftype.l` command to instruct Blitz to make all my variables long words unless otherwise specified. Then I open a hires screen and a simple window with a close gadget. Then comes the constant declarations and dimensioning of the main map array. The last command, at the end of the code, calls the statement `Main {}`, which starts the program proper.



## PROGRAMMING

### DRAWSQUARE {x,y}

This function updates the screen display to reflect what's stored in the map array. To place a fish in the world, you have to do two things - store the fish in the map array and call DRAWSQUARE {} to actually print the fish to the screen for the benefit of the observer. The two parameters passed are the x and the y co-ordinates of the square to be updated. From here you just set the location of the cursor and print the correct character for the organism in the correct colour.

### INIT {}

The INIT {} statement is called at the start of execution to set up the map with some starting organisms. It simply places the amount of fish and sharks defined by your constants #fishmax and #sharkmax in the map array and on the screen (with a call to DRAWSQUARE {}). It selects a random starting square for each organism.

### CHECKFISH {x,y}

This function checks all the adjacent squares to the passed x,y location for the presence of fish. It stores the co-ordinates of any adjacent square containing a fish in a special format, to make it easier to handle. The format is simply the x value multiplied by 100 and added to the y value. By doing it this way, you can store two numbers in one. To extract the two numbers again it's x=number/100 and y=number mod 100. The function returns the number of squares that contain fish, so a shark can check to see if it starves if the number is zero, or can eat a random fish if it's greater than zero.

### GENERATION {}

This function is the main working part of the program, as you might have guessed by the size of

it! Each time this function is called, it checks every square in the map array for organisms. If it finds a fish, it checks to see if that fish has offspring - the chance of this is defined in the constant #fishbirth (one in ten). If so, it attempts to place the new fish in an adjacent, vacant square. The new fish is displayed on the screen with a call to the statement DRAWSQUARE {}.

If the organism within a square is a shark instead of a fish, we call the function CHECKFISH {} to look for food in the adjacent squares. If it doesn't find any, we check to see if the shark starves, the chance of this being defined by the constant #sharkstarve. If the shark survives its fast, it moves to a random adjacent vacant square. Again, DRAWSQUARE {} is called to update the screen to reflect changes to the map() array.

If, however, the shark finds a fish in an adjacent square, it moves there and eats it! If there's more than one fish adjacent to the shark, it selects one at random. Moving the shark to eat the fish is simply a matter of clearing the shark's original square, and changing the data in the fish's square from a fish to a shark. Again, we call DRAWSQUARE {} to update the screen display. If a shark feeds, it makes a check against the constant #sharkbirth to see if it has a baby shark; this offspring also requires an adjacent vacant square to be born into.

Because sharks move around the map, we need a method to flag that they've acted this generation, so we don't activate them again as we move down the map searching for organisms - remember that GENERATION {} searches through each square on the map in a set pattern. So when a shark has acted for the generation, we store a #moved number in the map for it. After all the squares have been

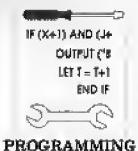
processed for the generation, we go through and reset them back to their normal values. As we encounter each shark, we increase the variable sharkcount by one; this gives us an interesting statistic to observe as the generations stream by.

### MAIN {}

The last statement is the main control loop for the entire program. It calls INIT {} when the program is first started, and calls GENERATION {} after a delay, enabling the viewer to see what is happening at a human frame rate. MAIN {} also checks for a quit command, either via a close window event or a press of the escape key event. I've put in some code to check for the press of a gadget, so you can expand this program by putting in any additional features you can think of - a restart button, for instance. Main also updates some simple statistical information of the number of generations that have elapsed, and the current number of sharks alive and kicking.

That's it for this month; I hope you've enjoyed this article. I know it's been a bit long winded, but this program has a lot of potential for modification. The possibilities are almost endless. You could add different organisms, change the laws of physics for the world, make it bigger, give the fish the ability to move, add lots of nice features like load, save and restart and so on. Go to work!

If you have any ideas or comments about Blitz Basic, or put together an award winning program out of this month's tutorial, then please send a letter or disk to me, ROY HURLEY, Box 1420, Wollongong 2500. Until next month, keep coding, and Blitz on dudes!



## Blitz listing

```

Dim map.b(#xmax+1,#ymax+1),fish(8)

Statement DRAWSQUARE {x,y}
    SHARED map()

    ; Print organism type on screen
    WLocate x*8,y*8
    If map(x,y)=#fish Then WColour 2 : Print ">"
    If map(x,y)=#shark Then WColour 1 : Print "$"
    If map(x,y)=0      Then WColour 0 : Print " "
End Statement

Statement INIT {}
    SHARED map()

    ; PLACE FISH IN THE POND
    For t=1 To #fishmax
        x=RRnd(1,#xmax):y=RRnd(1,#ymax)
        map(x,y)=#fish
        DRAWSQUARE {x,y}
    Next

    ; PLACE SHARKS IN THE POND
    For t=1 To #sharkmax
        x=RRnd(1,#xmax):y=RRnd(1,#ymax)
        map(x,y)=#shark
        DRAWSQUARE {x,y}
    Next

End Statement

Function CHECKFISH {x,y}
    SHARED map(),fish()

    For t=1 To 8 : fish(t)=0 : Next : o=1 ; Reset
    =>adjacent fish information

    If map(x-1,y-1)=#fish Then
        fish(o)=(x-1)*100+y-1:o+1
        If map(x,y-1)=#fish Then fish(o)=x*100+y-1
    =>:o+1
    If map(x+1,y-1)=#fish Then
        fish(o)=(x+1)*100+y-1:o+1
        If map(x+1,y)=#fish Then fish(o)=(x+1)*100+y
    =>:o+1
    If map(x-1,y+1)=#fish Then
        fish(o)=(x-1)*100+y+1:o+1
        If map(x,y+1)=#fish Then fish(o)=x*100+y+1
    =>:o+1
    If map(x+1,y+1)=#fish Then
        fish(o)=(x+1)*100+y+1:o+1
        If map(x+1,y)=#fish Then fish(o)=(x+1)*100+y
    =>:o+1
    Function Return o-1
End Function

Function GENERATION {}
    SHARED map(),fish()

    sharkcount=0

    For y=1 To #ymax
        For x=1 To #xmax
            If map(x,y)>0
                If map(x,y)=#fish
                    If RRnd(1,#fishbirth)=1
                        =>; Fish has a baby!
                        x1=x-1+RRnd(0,3):y1=y-1+RRnd(0,3)
                        =>; random location
                        If x1>0 AND x1<#xmax AND y1>0 AND
                            =>y1<#ymax ; check it is on map
                            If map(x1,y1)=0
                                map(x1,y1)=#fish
                            =>; check it is an empty square
                                DRAWSQUARE {x1,y1}
                            End If
                        End If
                    EndIf
                End If

                If map(x,y)=#shark
                    sharkcount+=1
                    o=CHECKFISH {x,y}
                    If o>0
                        v=fish(RRnd(1,o)):fx=v/100:fy=v MOD
                        =>100
                        map(fx,fy)=#shark:map(x,y)=0
                    =>; Eat the fish!
                        DRAWSQUARE {x,y} : DRAWSQUARE {fx,fy}
                    =>; Update display
                        map(fx,fy)=#moved
                End If
            End If
        End If
    End Function

```

*Blitz listing continued on page 42...*

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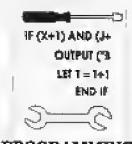
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## PROGRAMMING

### *Blitz listing continued...*

```

        IF (X+1) AND (J+
        OUTPUT ("3
        LET T = T+1
        END IF

If RRnd(1,#sharkbirth)=1
  ; A shark is born!
  x1=x-1+RRnd(0,3):y1=y-1+RRnd(0,3)
  ; random location
  If x1>0 AND x1<#xmax AND y1>0 AND
  y1<#ymax ; check it is on map
  If map(x1,y1)=0
    ; check it is an empty square
    map(x1,y1)=#shark
    DRAWSSQUARE (x1,y1)
    map(x1,y1)=#moved
  End If
End If
Else
  If RRnd(1,#sharkstarve)=1
    ; Shark starves!
    map(x,y)=0
    DRAWSSQUARE {x,y}
  Else ; Shark moves!
    x1=x-1+RRnd(0,3):y1=y-1+RRnd(0,3)
    ; random location
    If x1>0 AND x1<#xmax AND y1>0 AND
    y1<#ymax ; check it is on map
    If map(x1,y1)=0
      ; check it is an empty square
      map(x1,y1)=#shark:map(x,y)=0
      DRAWSSQUARE {x1,y1} : DRAWSSQUARE x,y
      map(x1,y1)=#moved
    End If
  End If
End If
End If
Next
Next

; Reset the "shark moved" flag
For x=1 To #xmax:For y=1 To #ymax
  If map(x,y)=#moved Then map(x,y)=#shark
Next:Next

Function Return sharkcount
End Function

Statement MAIN {}

```

```

While quit=0
  If init=0 Then INIT{} : init=1
  Delay_ 1 ; give some cpu time for
  ; multitasking

  If loop MOD #framespeed=0
    scount= GENERATION {}
    If scount=0 AND RRnd(1,20)=1 Then Display
    ; Beep_ 0
    gen+1:WColour 3
    WLocate 16,220:Print "Generations: ",gen,
  ;"
    WLocate 16,228:Print "Sharks: ",scount,
  ;"
  End If
  loop+1

  ev=Event
  Select ev

  Case $400 ; KEY EVENT
    a$=Inkey$:k.b=RawKey
    Select k
    Case $45 ; Esc key QUIT
      quit=1
    End Select
  Case $200 ; CLOSE WINDOW EVENT
    quit=1
  Case $40 ; GADGET EVENT
    Select GadgetHit
    Case 1 ;Add gadgets to the window here!
    Case 2
    Case 3
    End Select
  End Select
  Wend

End

End Statement

MAIN {}

```

NAME	SETS			GAMES			
	WON	LOST	%	WON	LOST	%	
BRY MCCLUSKEY	11	11	50.00	100	12	0	100.00
VE COUGHLIN	22	11	63.64	123	4	85.19	
SHAM WYATT	11	11	50.00	113	4	85.19	
EG GINN	11	11	50.00	113	4	85.19	
AN COOPER	11	11	50.00	113	4	85.19	
PHEONIX	0	11	0.00	0	11	0.00	
IG CLOUTIER	11	11	50.00	113	4	85.19	
N van der HEDEN	6	11	36.36	36	62	61.29	
F MOYNIHAN	11	11	50.00	113	4	85.19	
T WATKINS	5	11	36.36	36	62	61.29	
JREEN MCCLURE	7	11	36.36	36	62	61.29	
INE LIGHT	11	11	50.00	113	4	85.19	
IK PAY	11	11	50.00	113	4	85.19	
AN HANCOCK	4	5	44.44	9	11	45.00	
G TASCA	5	7	41.67	14	14	50.00	
NDAN SHIELDS	5	7	41.67	12	14	46.15	

# TurboCalc V2.0

## A spreadsheet with pizzazz!

By Ron Kelly

I've spent a couple of years trying to come up with the best program for keeping sporting club records, such as ladders and player rankings for my local table tennis club. Another Amiga-owning friend who kept squash club records on an ancient program called Unicale showed me his system, but I was sure there had to be something better. Unicale didn't even have file requesters, for pity's sake! It did have a very good sorting command called "Arrange", and little else unless you had grown used to its keyboard commands.

So I took the plunge and bought Procalc2.0. It was a great improvement on Unicale, but its database sorting facilities were not reliable and had to regularly be fixed by hand. Another problem was that I couldn't get fancy colour output to my whizz-bang new Canon BJC600, having to settle for text. Procalc's colour screen dump can only be used for charts, not general use. Even then, the bitmapped output wasn't much to write home about.

Then one day I noticed Emerald Creative's spiffy looking ad for TurboCalc V2.0 from Germany

(now home of the Amiga!) so I thought I may as well give it a burl. Hallelujah!

Straight away, I knew this was the best Amiga spreadsheet yet, and despite one or two quirks discovered since, I've become a true believer. Besides its modern look and feel, tool-bar, great configurability, wide range of features and good manual, it's TurboCalc's Graphic Print output option which really sets it apart.

The selected print range is printed to the maximum resolution of the printer, a la PageStream. So, provided outline fonts are used, you can get very high print quality. It's not exactly WYSIWYG, as you can tell by comparing the screenshot with the printed ladder example, but it's close enough when you know that the printed results will be better than the screen.

TurboCalc's manual should ideally be read in a German accent! It manages to get the message across OK, but it seems rather verbose at times. Nevertheless, the manual allows you to delve in to whatever depth is comfortable. Macro and ARexx programming

chapters will appeal to power users, who can include TurboCalc in their mega-applications with ease.

There must be plenty of Amiga people out there who, like me, have to keep sporting club records, so perhaps a word or two on my spreadsheet design may help. Of course, I don't profess this to be the best set-up - perhaps you have what you believe to be a better way, using a database program for example, in which case let's hear about it!

At the top left of the sheet is the team ladder database. Underneath are databases for individual and doubles rankings (used to seed players in tournaments and future team competitions etc.) The figures in these areas come from elsewhere on the sheet automatically. To the right, each team has a horizontally oriented section with subsections for each player, doubles combination and areas for substitutes to be entered. Each week a new row of data is entered here to build up the season's records. Each sub-section reports back to a team totals summary, the totals of which are the cells referenced by the ladder database areas.



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KERANG TABLE TENNIS ASSOCIATION WINTER PENTNA DIAMONDS												SW	SL	GW	GI															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
A-GRADE																														
A-GRADE LADDER & RANKINGS AFTER ROUND 4, 4 MAY, 1995																														
TEAM	PRTS	PL	WON	LOS	0	SETS	GAMES	0	WON	LOS	%	WON	LOS	%	WON	LOS	%	WON	LOS	%	WON	LOS	%	WON	LOS	%	WON	LOS	%	
AMETHYSTS	12	4	9	1	20	13	54.08	65	47	57.27	2076	1838	50.04	Round 5	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOPAZ	12	4	9	1	20	13	58.82	58	48	55.77	1882	1810	50.00	Round 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIAMONDS	12	4	9	1	21	14	54.58	50	43	51.02	1794	1698	50.67	Round 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SAPPHIRES	8	4	2	2	20	23	47.73	50	51	49.50	1794	1698	49.36	Round 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OPALS	8	4	2	2	21	23	47.73	47	55	46.09	1795	1830	49.36	Round 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RUBIES	8	4	1	3	21	23	47.73	50	51	49.50	1791	1821	49.36	Round 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GARNETS	4	4	1	3	18	25	42.13	47	54	46.59	1301	1778	50.35	Round 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EMERALDS	4	4	1	3	19	25	43.18	45	57	44.12	1767	1859	49.73	Round 12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLAYER RANKINGS																														
NAME	SETS	%	0	0%	0	0%	GAMES	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	
GARRY MCCULL	6	0	100.00	12	0	100.00	252	126	86.67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
STEPHEN COULTH	11	3	91.67	X3	4	75.00	363	403	57.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
GRAHAM WYTE	11	1	91.67	22	5	91.49	553	377	59.63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
GREG GIN	5	1	80.00	11	6	78.57	274	222	66.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
BRIAN COLLINS	7	2	77.78	15	6	71.43	403	342	54.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
STEPHEN PRAN	6	2	75.00	20	7	74.07	625	562	57.25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MARC COUGHL	3	4	66.67	16	10	51.54	495	445	52.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
JOHN van der H	8	4	66.67	19	12	61.28	590	534	52.06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
CLIFFORD MAT	4	2	66.67	3	3	57.14	294	236	51.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MATTHEW M	5	4	55.56	10	3	52.63	322	291	50.94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MAUREEN MCC	5	4	55.56	11	12	47.83	398	429	49.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

At the same time, each player's sub-section totals are referenced by the rankings database. With TurboCalc, absolute cell references must be used in databases, (e.g. =\\$Q\$21 not just =Q21) a lesson I learnt the hard way and which doesn't follow the approach used by ProCalc, which logically assumes database operations require cell references to remain absolute. A small imperfection, perhaps to be addressed in future versions.

The ladder and the rankings are sorted in reverse order of priority, - points percentage first, then games %, sets % and premiership points. If a bye is in operation, a match ratio is used as the last and therefore top sorting priority. Naturally, different sports have different scoring methods and priorities, but you'll know what's applicable to your situation.

Colour is used not only for effect but also to easily follow team progress. Each team has a colour-coded background and members can at a glance see where the team

is and where they are on the rankings. It's also a good way of keeping track of who's in what team. Patterned backgrounds can also be used if you run out of colours.

As yet, I have not come up with a way of using a scoresheet template to more easily enter each week's data into the spreadsheet, rather than having to manually add up each player's totals. I know it can be done, because my predecessor had it worked out using Lotus 1-2-3. Alas, he has passed away, taking his knowledge with him. If you can help in this regard, write in and share your ideas.

I can thoroughly recommend TurboCalc, not only for its very capable spreadsheet functions, speed and flexibility but also for its professional output quality and integration of Amiga conventions which make it easy to drive yet vast in its breadth of capability, like a good German car.



# The rebirth of the Amiga

By Daniel Rutter

Finally, the moment the Amiga world has been waiting for so long has arrived. The Amiga technology's new owner has been decided.

Escom AG, the second biggest PC maker in Germany (\$US2 billion in sales in 1994), only became visible in the Amiga ownership race late in the piece, although they now say they've been after the Amiga since August 1994. In any case, they've turned out to be the upset winner. They're getting the AGA machines back into production and haven't ruled out anything regarding their plans for the machine's future.

We were all expecting a bid-

ding war between the most vocal Amiga aspirants - CEI and Commodore UK. Escom had been quiet about its plans for the Amiga; everyone knew the German company had tons of money but its actual level of interest in owning the Amiga technology was anyone's guess.

On the day, it turned out that Commodore UK and CEI didn't enter any bids at all! The three bids entered at the auction were from Escom, Dell Computer (who hadn't even been rumoured to be involved before) and Creative Computers, a large Californian dealer.

The bid from Creative Comput-

ers was rejected, because they didn't come up with the required \$US1 million security deposit.

The Dell bid (for an undisclosed amount) was apparently in association with CEI - if the bid was successful, CEI would become Dell's Amiga division. However, the bid carried the condition that Dell wanted to examine some patents before finalising the sale, and wanted 30 days to make sure they actually wanted the Amiga, forfeiting their \$US1 million deposit if they decided to drop the deal and starting the whole process again. This bid was also thrown out.

Immediately after the auction,



Commodore UK issued a press release which said that they'd realised in the days leading up to the auction that Escom or Dell would have "the financial muscle to overbid our independently financed offer", and that they thus "took the decision to withdraw early and work with the winning bidder."

On April 21st, the day after the auction, the three pre-filed objections from the US creditors, IBM and the Commodore Netherlands/Philippines/UK trustees were heard and, reportedly, overruled without great drama, although the Netherlands trustees managed to temporarily remove the parts held in Commodore's Philippines warehouse, and the Commodore UK company, from the buyout package. Escom is expected to buy the Philippines stock separately, and may buy out or work with Commodore UK.

There was another, new, objection from Dell, who entered a new \$US15 million bid, still with the 30 day cooling off period. Escom put another \$US6.5 million on their own bid, bringing it to \$US12.1 million. Dell were shown the door. They were offering more dollars, but they could also change their minds and leave, and the creditors weren't going to stand for that. So Escom won.

### Early interviews

In an early interview with Josh Galun and Giorgio Gomelsky, of Amiga Link Online magazine and the AMUSE Amiga user group, Escom sounded very open minded about the machine.

Escom's representative was Bernard van Tienen, ex vice-president of Commodore International (he estimated that about 100 ex-Commodore staff were already at Escom). While he didn't make any definite statements about Escom's plans he didn't rule out Amigas being used in set-top boxes,

being powered by PowerPC processors, or being cloned in technology licensing deals.



Tienken said Escom was setting up a group of advisors to help them plan their Amiga strategy, and indicated that this group would include as much of the Amiga community as possible. He mentioned that Escom plan to be accessible to Amiga users - which will be a refreshing change, against the frustrating isolation of the old management.

Tienken also said that Escom plans to be shipping new Amigas inside three months, and will have them in their own large chain of stores and, of course, others as well.

Josh and Giorgio went on to interview Colin Proudfoot of Commodore UK, who said he was looking forward to working with Escom. He said that it was an academic question whether Commodore UK would continue to exist as a separate company or be bought by Escom; in any case, he anticipated that most of the current staff would be retained. He emphasised that, in his view at least, global marketing was the way to go, which is good news for those of us who don't live in Europe or the US. Proudfoot's view of Escom's reason for getting the Amiga was simple - according to him, Escom are looking to expand out of Europe, and in order to do so need something more marketable than yet another brand of PC clone.

The Amiga, according to Proudfoot, fits the bill.

Proudfoot also mentioned the importance of good relations with developers, and thanked the developer community for its support.

Dan Stets of the Philadelphia Enquirer, who's been following the whole sordid story from the start, also spoke to Escom and largely confirmed what Tienken said in the interview. According to Stets, Escom plans to manufacture Amigas in a plant near Beijing, China (there will be no American manufacturing operation), in a joint venture with Tietsin, a Chinese electronics firm with a background in game console manufacturing and what's billed as one of the largest distribution organisations in China.

### Escom's policy

In a later press release in German, Escom officially announced their takeover of everything covered by the Commodore and Amiga names, and also said that they intend to continue the Commodore and Amiga product lines, with machines distributed world wide. They also said they plan to manufacture the C64 again, aiming it at the eastern European market.

Escom said they're working on integrating Amiga and IBM-compatible technology - in the form of PC cards with Amiga chips on them. In this, Escom seem to be following the 3DO corporation (formed by disgruntled ex-Commodorians) and their 3DO cards as well as standalone machines. Escom sounded keen about Amiga set-top boxes for interactive TV.

They also displayed enthusiasm for the growing Chinese market, along with more information on the Chinese manufacturing company, which apparently has a 80 per cent share of the Chinese game machine market sewn up.

□



# Engineering boss speaks

*Now, a message of intent from Dr. Peter Kittel,  
new leader of the Amiga engineering division.*

Most important item first: I have my job, and it's world-wide boss of engineering. Yes, I know, I start into a very difficult task, as successor to some real celebrities. On the other hand, I had 11 years at Commodore to study what is the wrong strategy and which leads to success. I will try to avoid these known errors.

And now for the big picture: There will be a new, completely selfstanding daughter company of Escom AG, with its own own address in Heppenheim [the location of Escom's HQ]. It will be the headquarters of the new company, with control and coordination for the whole world. There will be one subsidiary in the Netherlands, and it will do Europe-wide distribution and sales. Further country subsidiaries are not impossible, but there aren't any concrete decisions about UK, USA, and Canada in particular.

The new company has yet to be founded, but this is currently in the works. The name is not yet decided, it will probably be something like "Commodore-Amiga" or "Amiga-Commodore". This company will (at least for the time being) deal exclusively in Amiga computers.

As can be inferred from the first paragraph, there will be an engineering department, for hardware and operating system software. We've already got promising contacts with well-known and well-respected names. Yet there's no problem if someone wants to send his resume (no email or fax, please) to:

**Escom AG**  
**Personalabteilung**

**Tiergartenstr. 9  
D-64646 Heppenheim Germany**

You see, we consider ourselves an international company. Of course we only want the best ones :-).

There will be a Support department which will do world-wide coordination, but also covers the German area. Thus most of these people should be German-speaking. The Amiga Developer Support Program (ADSP) will be reactivated as soon as possible. We haven't yet decided about those developers currently using BIX or CIX. These people should feel free to contact me directly at my private email account (there's no company one yet) and giving some input. In the past years there was a split among the developer community into different communication channels so no direct communication among the developers was possible, and for engineering this meant double work to explain the same issues once on one net and then again on another net. We will do everything to avoid this nonsense in future.

There are big obstacles, as there are big cost differences in different regions of the earth, and simultaneously a high degree of confidentiality has to be maintained. Enduser support will happen mostly in electronic form, via mailbox, Internet, and probably also Bix.

Of course there will also be a Marketing department and what is needed in administration. All together, this will be a rather slim company of about 50 people at first, but further expansion is of course not impossible.

It's planned to restart produc-

tion of the current models, probably in full scale, but there's no guarantee yet for this. Also of course not all models will appear at the same time, but one after the other. As Escom has its own large casing production facility, the Amigas may get a redesign of their styling, in any case for the A4000, but the hardware under the hood will remain unchanged at first.

For production to restart, first diverse contributing factories have to revive their production of parts. New developments would mean additional months of waiting, before you could buy the products. That would be too big a sacrifice.

The direction of the new engineering department will definitely be the port to some RISC platform. The choice of this RISC is still open. There are ecstatic advocates for at least two alternatives, PowerPC and HP PA RISC. Chris Ludwig gave an interesting interview about this [in which he said that CBM before its death had decided on the HP product]. It will be the first task of engineering to prepare this choice of paths into the future.

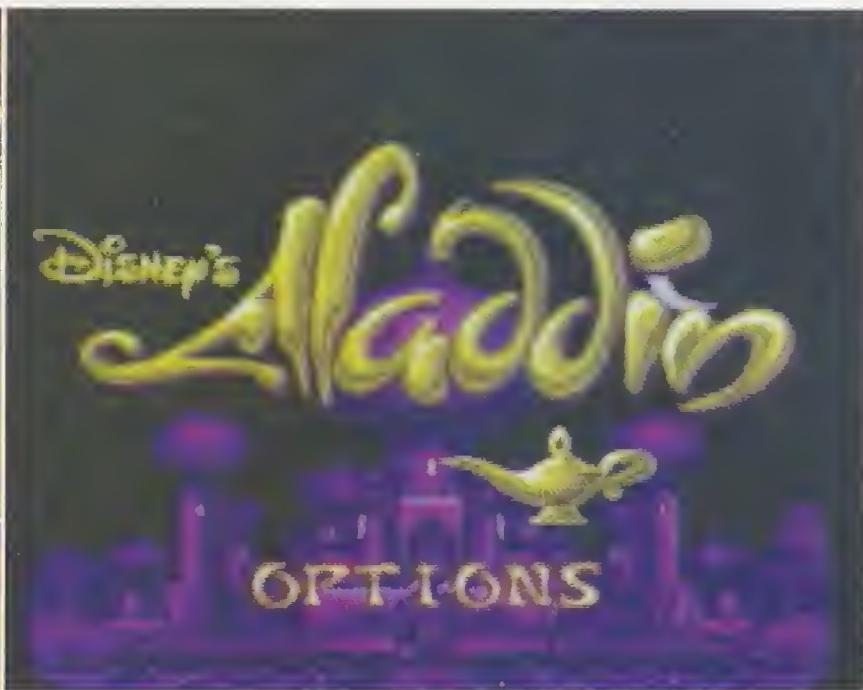
It has been decided to be very liberal in regard to licensing in the future. So whoever wants to build, for example, an Amiga laptop or a set-top box can get chips and OS!

As you all see, much of this is still a letter of intent. The points which are declared as still open are REALLY open, so there's no use in bombarding me with further questions.

As my workload, at least now in the building phase, will be immense, I can't guarantee my presence on the net like before. But who knows me, knows that that would be most painful for me myself. So let's look forward.

In the next weeks there will be press conferences to tell more and more details.

Long live the Amiga.  
Email to: peterk@combo.ganesha.com



► You used to know where you were with a movie conversion game. They were stock standard platform numbers with characters featuring some small resemblance to the cast and locations featuring some smaller resemblance to the sets and gameplay featuring practically no resemblance to the plot. At best they were OK, at worst (the norm) they were lousy.

But Disney have changed that.

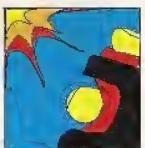
Sure, Aladdin's a plat-

form game converted from a movie. But it's beautiful, playable and funny. The console version of this game's sold like wildfire, and with good reason; I'm pleased to report that the AGA Amiga version's not suffered much from being crammed onto three disks.

The bad points first. You can't hard disk install Aladdin, and there's irritating refer-to-manual copy protection. But disk loading once you're into the game isn't that annoying, and the game itself has everything I like about platform games and nothing I don't.

The controls are simple and re-





sponsive - Aladdin skids around a bit but you get used to that. You can use your sword or lob apples at the bad guys, and you can switch between modes by slapping the space bar, or by pulling down and holding the button; the space bar is definitely the best way. You can, of course, leap about, climb ropes and ladders, hand-over-hand your way along clotheslines, slide down poles and do all the rest of the standard platform game schtick, and you can get off a rope, pole or whatever whenever you want, and swing your sword or chuck an apple whenever you want too. None of this "I can't attack, I'm on a ladder" stuff. And there's no time limit. Why should there be, in a game that's not coin operated? There's an hourglass in the top left corner of the screen, but this is just a life indicator, complete with a genie head next to it that gets steadily more alarmed as you get beaten up.

The graphics are magnificent. Aladdin's movements are well drawn and very fluid, as are all of the bad guys. It's all pretty slapstick, just like the movie - you won't see a drop of blood in the whole game. The sound is also good, but nothing can top the graphics.

Overall, this is a top game, regardless of its origin. Even if you don't like platform games much - and I don't - you'll enjoy Aladdin.

□

*By Daniel Rutter*



## Aladdin

**Contact:**  
**Amadeus**  
**Computers**

**Ph: (02) 6511711**

# Online

By  
Daniel  
Rutter

## The day the music died (don't panic - it hasn't come yet)

In the continuing popular-press saga of The Internet And How It Will Destroy The World, there's a new theme. We've had The Pornography Superhighway, and The Terrorists' Academy, now it's The Death Knell For Popular Music. That's right, folks - the Internet will kill musicmaking as a profitable venture, because horrid nefarious people will rip off music and distribute it freely on the Net. And there won't be a thing anyone will be able to do to stop them. Woe. Misery. Film at 11.

Unusually, for a sexy media issue, the music copyright scare actually has some solid grounding to it. But it's not a problem yet.

## Here's the deal

The Internet is, essentially, unregulated. Anyone who can figure out how to get on, can. And once there, they can do just about anything. While a number of prosecutions have been launched against people who've sent death threats via Internet email, maintained sites dealing in child pornography or in some other way gone beyond the pale, the legal status of the Net remains very difficult to pin down.

Music can easily be digitised - turned into a computer file. This is the whole idea behind sampling,

one of the definitive features of a large portion of late 20th century popular music. And computer files can easily be propagated freely through the Internet. Thus, it seems it should be easy to make a musician's work freely available to the much-touted millions of Internet users. And if this is what the musician wants, all is well.

## The problem

Unfortunately, most musicians are rather keen on selling their music, and getting at least some of the profits. They have this silly fixation about buying food and paying the rent, and can't see beyond it to the beautiful world of free entertainment for all that the Internet is striving for. And to stop people copying their work willy-nilly, the musicians copyright it. And if you send copyrighted music all over the place for free, you're doing something which is very much the same as pirating software.

Copyright infringement on the Internet is so widespread as to be practically inescapable. In any half-hour surf of the World Wide Web, I pass a good dozen spots where someone could justifiably bring an infringement suit, if they could be bothered and if the target would stand still long enough for them to get a shot off.

There's text and pictures alike - all someone has to do is scan it and stick it into a directory and before you know it 100 people have it and 100,000 people have pointers to it and no force on Earth could root it out. Practically all of those well-publicised pornographic pictures are copyrighted to the paper publications they originally appeared in, but there they are. A while ago I found an archive of the collected works of Hunter S. Thompson. What the father of gonzo journalism would do to a

person whose nimble typing fingers cut Hunter off from a source of royalty money which could further reduce the amount of blood in his alcoholstream beggars the imagination, but it's never going to happen because Mr Thompson's never going to find the culprit.

The Net's full of scanned Far Side cartoons, Optical Character Recognition-ed Dave Barry pieces, reprinted-without-permission news paper articles and other chunks of other people's work, and nobody gets paid a penny.

But music is not in danger, at least yet, and I'll tell you why.

## Land of the humungo-files

At the moment, online sound compression ain't that popular. It's a watch-this space sort of proposition, what with MPEG sound gaining momentum, but the most popular sound formats these days are the straight, uncompressed sample formats, all of which are around the same size and none of which get much smaller when compressed with standard archiving software. What this means is that digital audio of any decent quality takes up Mondo Room.

Let's look at a worst case scenario, just for the sake of the big numbers. Let's say you are Evil Pirate Guy (this name looks pretty dumb on your Lycra jumpsuit, so you're working on something snappier), and you want to send a whole CD out to the world, depriving its starving creator of the few pennies he needs to feed his 19 crippled children. Nyahahahaha.

OK, that CD contains, say, 60 minutes of audio. This audio is two channel, 16 bit, 44.1kHz (44,100 samples per second). So you need 2 times 16 times 44,100 times 3600 (the number of seconds in 60 minutes) bits to store the whole thing.

This is 5,080,320,000 bits, or 635,040,000 bytes, or about 606 megabytes of data. That's a lot. This article's about 1600 words long; you could fit this article's text into 606 megabytes almost 400,000 times. Big number.

You are of course Nasty Copyright Infringement Man (nope, no better), so you've got all the snappy new gadgets, including a honking fast 64 kilobit ISDN connection to the Internet, which in Australia costs a fortune but heck, you can afford it after beating up that Salvation Army band and stealing their collection tin.

For you to move 635,040,000 bytes of data at 64,000 bits per second will take you some 79380 seconds, which is a shade over 22 hours. This is assuming you're getting 100 per cent efficiency from your ISDN connection, which no mortal will ever achieve, but what the hey, you're special.

Now, you're not paying for your online time or for the data transferred, because you're Royalty Eating Dude (let's forget about this supervillain name, OK?) and have made a deal with malevolent aliens that they can use all the pre-schoolers they like for transgenic manipulation as long as they fiddle you free access. But anyone that is paying for their net-surfing will have just paid one heck of a lot more than the price of a CD for the privilege of downloading your version. 23 cents for a phone call plus \$2.20 for the online time plus \$63.50 worth of download. Plus the \$1000 hard disk they need to be able to hold the file and still have room for their Internet software.

This, of course, is not a strictly fair comparison. For a start, whole CDs aren't necessarily being ripped off. It could just be a single song, say four minutes long, which

would take a mere 88 minutes or so to download at the abovementioned unrealistic speed. And you'll compress it with one of those compressors optimised for audio data (so anyone wishing to avail themselves of your pirated ware will have to find themselves the decompressor), and you get the sound down to, say, 60% of its original size. Huzzah, 53 minutes for a four minute tune.

But remember that ISDN connections are not the norm. 28,800 Bps modem connections are not even the norm, yet 14,400 is more like it, and the slowdown caused by the extreme popularity of nifty sites (such as those that offer Top 40 records for nothing) will likely choke back the effective transfer rate still further. Before you know it, you're looking at a whole-CD transfer time, even with compression, of around 90 hours. This is completely ridiculous.

You can greatly reduce transfer time by cutting the samples back to 8 bit, 22.05kHz mono (that's an eighth of the size right there) or worse, but you end up listening to something that sounds like AM radio, which is not the first port of call for the discerning audiophile.

### **It won't happen overnight...**

So, at the moment, music piracy over the Internet is a concept, not a phenomenon. But will it stay that way? Of course not. In a scant few years, some sort of evolved-Internet will probably exist that you can get onto without needing a degree in Advanced Propellor Beanie Dynamics, and which gives everyone blazing fast connections - say 128Kbps for starters, or maybe Ethernet speeds way above a megabit per second. Integrated, universally understood MPEG audio will hack file sizes down by a factor of three, four,

five - maybe ten. Who knows.

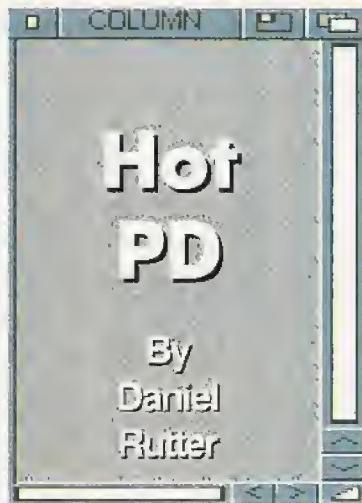
With quarter-sized audio and a 2MBps link, you could move a 60 minute CD in about ten minutes. Under a minute for a four minute song. At these speeds, it's quite possible to play the CD straight from the net, just sucking the data into your player and not even bothering to save it - after all, it'll still be there in the future if you want it; you can get over this childish ownership fixation.

If it goes this far, Internet music distribution is convenient enough to be a real threat to the livelihood of the artists, and to the continuing supply of hand-rolled Cuban cigars and big shiny German-made land yachts for record company managers. And this is what all the fuss is about. But it's not happening now.

Don't get me wrong - I think it's good that the music piracy issue has been raised so early. Usually, legally difficult implications of technology are noticed by the government only once they have well and truly arisen, and changes to the law are thus late, clumsy and largely ineffectual. I hope that the flurry of attention aimed at the subject by recent events will actually provoke some movement among our elected representatives.

It has been said (by no less a light than Bruce Sterling, author of the seminal how-they-think and what-happens-to-them work *The Hacker Crackdown*) that information wants to be free (man). And there aren't any bogeymen in the Internet copyright ripoffs - the major culprits are generally in it for fame, not profit. But we're still living in a society based on money, and, generally speaking, places where there isn't any money end up deserted. I hope somebody makes sure the money stays in music.

□



Welcome to another edition of Hot PD. This month there's the usual mixed bag of useful, amusing and plain inexplicable software for your delectation; let's get into it!

### Diamond Caves ★

The Amiga world, not to put to fine a point on it, positively crawls with Emerald Mine clones. The original game, a very good version of the Boulderdash idea, was chiefly notable for the fact that it spawned the SCA virus (the first on the Amiga) wherever it went, but if you ignore that character flaw the Emerald Mine saga is one of remarkable success, as literally thousands and thousands of brain-melting levels, full of rocks, gems, monsters, bombs, dynamite, keyed doors, amoebae, lava and fruit were created by warped minds around the world. And the game engine itself has been tweaked for different graphic and sound sets, and to run on more modern machines than the 68000 driven Workbench 1.2 OCS Amigas of yore.

What makes Diamond Caves different is that the old Emerald Mines interface has been parcelled into another recoded engine, with the spiffiest title screen I've seen in a long time and complete and flawless compatibility with Kickstart 2 and 3 machines. You can even play the game in hi-res interlace mode if you like, which lets you see a lot more of the puzzle

but will drive you bananas if you can't manage a flicker free display. There's also a game record/ playback mode, so you can demonstrate your brilliance or cackhandedness to your friends without lifting a finger.

If you register Diamond Caves you get, among other things, the most impressive looking level editor I've ever seen. I include the sample screenshot. Nice, huh.

This is a cool version of a cool game. Sure, the graphics are still the old chunky stuff, but who cares. On the companion disks, of course - it takes up a whole one by itself.

### Poing ★

Another game, and another good one. I've talked about Poing before, the last time only a couple of months ago - but this is a major update, to Version 3. It's still a left to right Breakout game, you still have a second chance if you miss the ball (try to catch it as it rockets back through the previous stages) and indeed the game as a whole plays much the same, but there are a few additions.

For a start, there's a whole new batch of levels, plus all the old

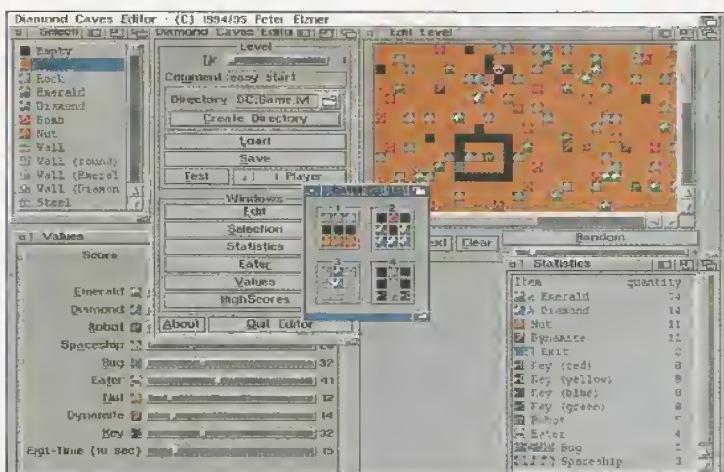
### Program complexity:

- ★ The Cat could work this.
- ★★ Lister could do it, if sober.
- ★★★ Kryten could handle it.
- ★★★★ Arnold Rimmer, no. Ace Rimmer, yes.

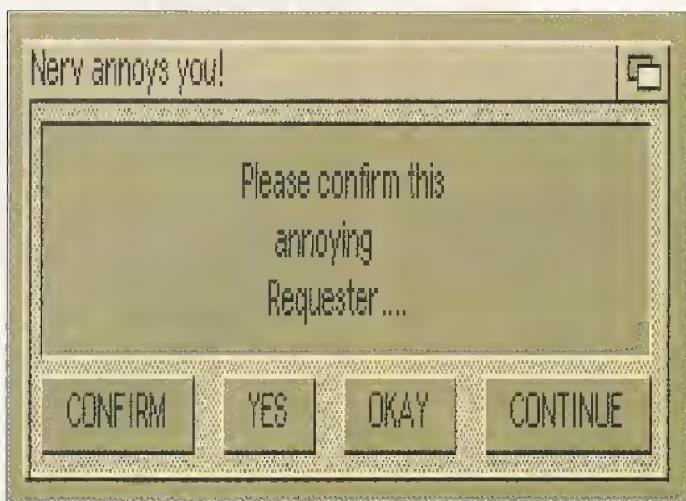
ones - and you can play them in random order if you like. There are a few cosmetic changes and bug-fixes, and there are also new command line options, so you can play in easy mode (extra ball every 10,000 points instead of every 20,000, but you don't get a high score listing), or turn on a thumbnail view of all the screens you've visited at the bottom of the play area, or even run the game in super-turbo mode to watch the computer rack up some high scores for you to play against. I do mean SUPER turbo, by the way.

### SafeRet ★

The first Damn Fool Program in this batch. This one's for everyone out there who's realised that many of the worst things that can happen to your Amiga start with



**Now THIS is what I call a level editor!**



*I'm sure you know someone who deserves this...*

you pressing that fateful return key. So, whenever you press return, SafeRet helpfully pops up a requester asking if you really mean it. 101 uses around an unsuspecting victim's home.

#### Info datatype

Here's a simple one - a datatype for icons. This means that if you've got OS3+, you can now load icon files into datatype aware programs, as if they were IFF pictures. Not much more to say about it, really.

#### JIV

Yet Another Picture Viewer. First, all of the things JIV does that a million and three other picture viewers do - it views IFF, JFIF (JPG) and GIF87 and some GIF89 pictures, it has a pile of command line options, it can scroll oversized images, it dithers pictures with more colours than you can display, and it can use all standard screen-modes, Picasso-II cards (and any other 24 bit card with a decent Workbench emulation) or an A2024 monitor, if you've got one. It even views PNM pictures; if you

don't know what these are you don't need to.

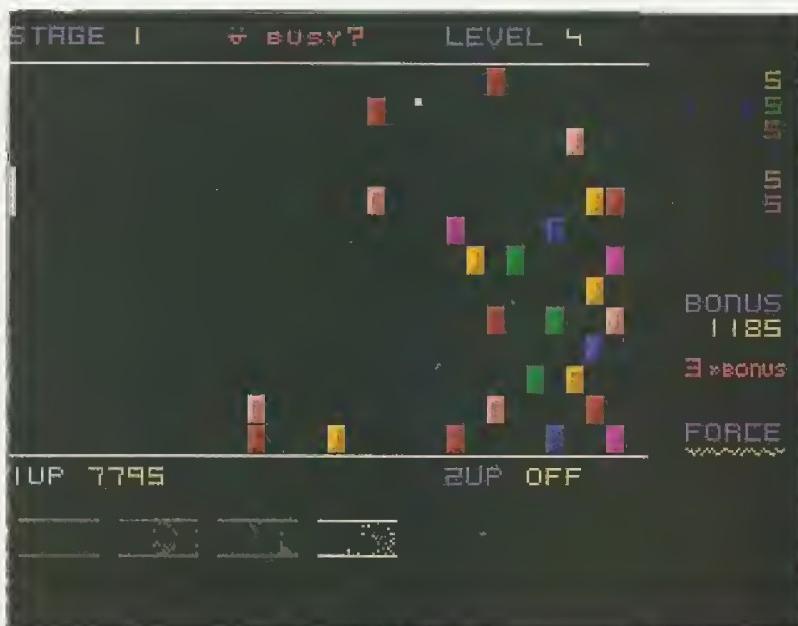
But JIV also views BMP images. It is the only Amiga image viewer I know of that does, unless you're an OS3+ user with a BMP datatype. It presently only views uncompressed BMPs, but that's

most of them; most BMP images stick with Microsoft's bigger-is-better philosophy and don't use the compression option.

Nothing else about JIV is especially remarkable; it requires WB2. The author promises a future version will show a whole load of other image formats, too. At last, some decent competition for ViewTek.

#### Nerv

I'm sorry. I can't help it. I have this thing for moronic programs. Nerv certainly fits the bill; it simulates using an unregistered shareware program written by someone who believes that if an annoying register-me requester every now and then is good, then one every three seconds must be better. There's absolutely no reason to run it on your own machine, but starting it up on someone else's, in, for example, the startup-sequence under a different name, could provide a few minutes of amusement.



*The latest incarnation of Poing.*



**Scale, showing off a miniature workbench.**

### RDB Informer

This program's aim in life is to tell you more than you probably want to know about the Rigid Disk Block (RDB) data on a hard drive. I ran it over my four-partition main drive and it pumped out 173 lines of information, the bulk of which I shan't pretend to understand.

What use is this? Well, if you're stuck in the SCSI wilderness with a drive that keeps its brains in its buttocks, every diagnostic tool you can find helps. You can use RDB Informer to see if the changes you're making are getting to the drive, and also to see if the drive has a valid setup, and also to make numbers that make sense to wizardly SCSI gurus. It's small, so it's on the companion disks.

### Scale

This is a lens program with a difference. Lens programs, as you all of course know because you read the Hot PD column almost three years ago in which I wrote about MKSLens, allow you to magnify bits of screens. They're not dreadfully useful day-to-day,

but if you need this sort of thing, this is the sort of thing you'll need.

Scale is an enhanced version, capable not only of magnifying your Workbench or most any other screen, but also of displaying a miniature version. You can mix magnifications, too, so you can set the X magnification twice as high as the Y value or vice versa and see how things look on screens with different shaped pixels. How useful any of this is is debatable.

Scale can also do quick-and-dirty icon scaling, so you can make icons anything from 10% to 1000% of their original size as they're loaded - if you snapshot the icons, they stick that way (there's a confirm requester to avoid accidental saving of monster or invisible icons). This, also, is novel but not necessarily useful. Ah, what the heck, it's on the companion disks.

### UnDel

Here's an unpretentious but really fast file undelete. You run it from the command line, you tell it the device to look for deleted files on and the place to put what it

finds, and then it scans the disk about 75% faster than Amiback Tools can manage it, and gives you a taggable list of files it found. Simple and useful. You need Workbench 2 to run it.

### MFS

Are you troubled by excess filesystems? When you stick a disk in a drive, does one filesystem say "That's the format I recognise!" while 17 others put DF0:BAD and SD0:??? and VF0:HUUH? icons all over your screen? Well, you need MultiFileSystem!

MultiFileSystem rolls all of your filesystems smoothly together. If you've got a PC disk in your first drive and you CD to DF0:, MFS calmly figures out the problem and puts you in PC0: with no drama. There are no annoying extra icons. And file systems don't have conniptions when one of their number inhibits a device for a format or a diskcopy.

By the way, when you start a format you get a requester asking you which of the filesystems on that physical device you'd like to use - so you don't have to use the shell or dthe actual Format icon to reformat, say, an Amiga disk as MS-DOS. And also by the way, dragging a disk onto another disk's icon to start a copy (or even starting a copy from the shell) will automatically use the right filesystem for the destination.

It's easy to set up and reconfigure, and, in case you didn't figure this out yet, you need WB2+. Every home should have it.

All of the programs mentioned in this column are available from Prime Artifax on 1800 252 879, on the HotPD24 companion disks. Ask for them by name. They'll cost you \$9.50, including postage.

# More Meeting Pearls

By Daniel Rutter

I checked out the first Meeting Pearls disc at the end of last year, and now another's come along in much the same vein. Like the last, it's a something-for-everyone disc.

The question, of course, is is it any good? The IBM world's swamped with freely distributable software CDs that aren't worth the buck fifty the makers paid to press them; is this a disc you should have in your library?

Well, maybe. You certainly get plenty of stuff. Like the last Meeting Pearls disc, almost everything is unarchived and ready to go, generally as pre-installed as it can be. You can run most of the disc's contents with no mucking about. On the downside, this means they only fit about half as much on as you get with a fully archived disc, but people short on drive space and patience will be happy.

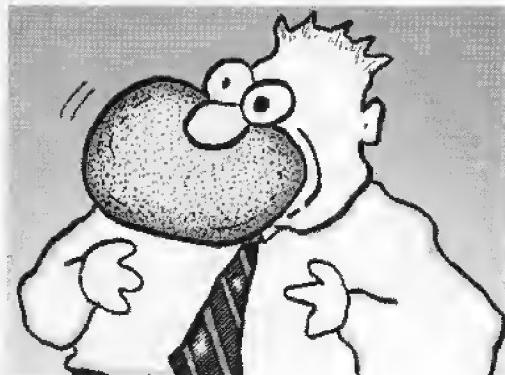
## Whaddaya get?

There's the complete collection of Eric Schwartz's sometimes brilliant and always good animations, all the common archiving utilities including the new LZX, a pack of benchmark programs, several up to date comms-related programs, and

a few debugging and development utilities including a compiler and other stuff for the Oberon language. There's a load of disk tools - CD-ROM and SCSI stuff, caches, floppy disk utilities, backup programs, disk and file editors and so on. There's software broadly classified as educational, which heading this time goes against tradition by covering some useful programs. There are 56 representative 1140

by 890 fractal images from "The Beauty of Chaos Vol. 1", a disc produced by Stefan Ossowski's Schatztruhe, coincidentally the company that produced the Pearls disc as well. There's a decent games section, with 14 unarchived megabytes of assorted entertainment software, most of it good.

There's graphics software - 3D object editors and other utilities, various Imagine objects, picture





viewers and so on. There's icon editors and other manipulators, and the inevitable collections of icons.

There's the Internet Movie Database, nicely set up with a MagicUserInterface, uh, interface, and lots of info on tons and tons of movies. There's almost 40Mb of Linux, a good Unix port for the Amiga, and MIDI-lovers will find more than 6Mb of utilities and MIDI files.

Less well-heeled music lovers will find about 25Mb of assorted techno SoundTracker modules. There are also getting on for 9Mb of MODs of various flavours from The Party 94, one of the big Euro-conventions for Amiga-freaks. The Party collection also has quite a lot of AGA and ECS chipset intros and graphics, but this is by no means an exhaustive collection - there's only around 17Mb in total and the complete catalogue of stuff that emerged at The Party would be way bigger.

There's a few sound utilities, and an updated version of NetBSD, another Amiga Unix which should now be more accessible to non-wizards - there was a pre-release version on the Meeting Pearls I disc which was of interest only to serious propellerheads.

There are a load of pictures - more than 25Mb of fantasy, Real3D and space pictures. These vary in vintage but are all at least OK, and you do get a good selection of Doctor Fun cartoons, an online comic heavily derivative of The Far Side and occasionally almost as good.

There's a whole directory for people with Psion organisers they'd like to link to their Amiga, with various Psion programs both useful and frivolous. There's another complete PasTeX distribution, for people who think graphical interfaces on desktop publishing packages are for nancy boys. There are lots and lots of ex-

tremely miscellaneous text files, many Amiga related but many rather random. There are sundry utilities. And, of course, more. Including, you'll be excited to hear, more pictures of European Amigoids which may prove an effective alternative to expensive pharmaceutical sedatives for any CD-ROM drive owners out there stricken with insomnia.

### Not all new

Not everything on this disc is actually all that new - unless there's been a very recent update you'll get the latest version of all the programs, but the latest version may well be a couple of years old. If you don't have much of a PD collection Pearls 2 is a good starter, but if you keep up with the times there'll be a lot of duplication. Not that it's easy to keep EVERYTHING new on a 650Mb disc.

The disc's layout's not bad, though not as smooth as Aminet's lovely Amigaguide hypertext system. There's a rather lumpy search system and the programs are generally adequately described - there aren't many programs without English documentation.

### Overall

In the final analysis, if you keep up with the Aminet CDs there's no compelling reason to get Pearls unless this particular assemblage of stuff really turns your crank. Just about everything makes it onto Aminet, generally very swiftly, so give or take a bit there's nothing here you won't find there. But, as I said, if you don't have much already this is a most excellent starter. And I enjoyed browsing it. Check it out.

*Contact Amadeus Computers,  
(02) 651 1711.  
RRP. \$49.95.*



□

# Free Reader Classifieds

1 x 210Mb IDE hard drive. 1 x SCSI Interface card, 1 x 88Mb Syquest removable hard drive & cartridge, 1 x Audio Engineer sound sampler. Assorted utility disks - CU Amiga, Amiga Computing, Amiga Shopper, Amiga User International, Prime Artifax, Amiga Format, OZ Amiga. \$600 ono. Call Philip. Ph: 070 555 767

**A500 1Mb RAM, PAL/NTSC switchable. 1084S Monitor, Star NX1000 Printer plus extra drive.** Excellent working order. \$500 the lot. Also various original software; Monkey Island, Police Quest 3 plus others. Ring for full list. \$20 each including postage. Call Michael. Ph: 018 373 930 anytime

**Accelerator Board 68030 with 68882 and 4Mb RAM** suitable for A2000. Commodore brand, autoconfiguring. \$650. Contact John. Ph: 06 299 2201

**Action Replay III cartridge A500, TV-Amiga connector, original DOS instruction tape, brand new mouse (IBM), original game (boxed - never used) for A500/A1200 and delivery anywhere in Australia.** All this for \$140 ono. Ph: 06 266 6221

**AMIGA 2000, 4Mb RAM, 105Mb hard drive, Twin 3.5 floppy drives, 1084S Colour monitor, Final Copy 2, Deluxe Video III, Deluxe Paint III, Amigavision, Draw 2000, WB 2.04 with W.B 1.3 Kickswitch, manuals & Amiga review mags.** \$950 ono. Also GPFax \$100. Call Alex. Ph: 08 255 0274

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**AMIGA 500, 1Mb chip RAM, external disk drive, TV modulator, 2 mice, 2 joypads, many original titles including; The Chaos Engine, Cannon Fodder, Mortal Kombat, The Settlers**

and many more, cover disks & magazines, \$280 ono. Ph: 08 264 428 after office hours.

**AMIGA 500 1Mb, External 3.5 inch floppy, 1084S monitor, mouse, lots of games. Business program, all manuals, excellent condition, sell the lot \$600.00.** Ph (044) 724994 Batemans Bay.

**AMIGA 500, 2Mb RAM with 30Mb A590 Hard drive** - \$450, Commodore 64 and Blue Chip disk drive \$130. Amiga loaded with programs - Pagestream 2.2, DPaint IV, heaps of PD. In excellent condition. Call Luke. Ph: 067 722 210

**Amiga A2386SX-25 Bridgeboard. 3Mb RAM, Janus 2.1, MS-DOS 5, SVGA multi-I/O card (2 serial, 1 parallel, 1 game, 1 IDE controller, 1 floppy controller, 512K SVGA), 40Mb IDE hard drive. IBM HD floppy required but not included.** Neg. \$720 the lot. Contact Craig. Ph: 054 419 769 (BH), 054 413 693 (AH).

**AMIGA Games: Theme park (A1200). As new.** All manuals, \$70. PC games; Dune, Robocop, Wing Commander and Lure of the Temptress, \$15 each. Ph: 089 275 083

**AMIGA public domain as low as \$2.50 per disk** inc Star Trek disk pack, 12 disks only \$18, Golded (2 disks) \$5. Ph: 067 851 458 for information on this and a catalogue disk.

**Broadcast Titler. 2 V.2 + manual 4 disks.** \$150. Ph: 075 307 569 or Fax: 075 303 877

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- Amos column - Andy's Attic - Exploring WB2 - CanDo - Your own directory utility Part 2 - Education Column - World construction set - Down the Opal mine - Using the Alpha Channel - C64 Column - Hot PD - Games - KGB, Fate - Gates of Dawn, Darkseed, Civilisation, King's Quest Full Solution Part 1.

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- ★ Hot PD - Games - Hired Guns, Trolls, Graham Gooch World Class Cricket - Solution to SuperFrog Part 2.

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compare 20 of them - Neptune Genlock, Desktop Video just got better - Amiga Animation Software.

★ DTP Column, Creating forms in Pro Page - Hot PD - Online Amiga - Blitz Basic - C64 - Games - Liberation - Captive II, Skidmarks, Cliffhanger, Apocalypse, Legacy of Sorasil - CD32 Games, Surf Ninjas, Global Effect.

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★ Columns - Hot PD - DTP - Online - CanDo - PowerDOS - Amos - CD32 - C Programming - Education.

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★ Columns - Blitz Basic - Online - AMOS - C64 C Programming - Games - JetStrike - Secrets of Frontier Elite Hintbook. Review of the Competition Pro Super CD32 Controller.

## SPECIAL EDITION ANNUAL

### January 95 Vol 12 No 1

- Lightwave Goodies, extra software finally in Australia - CEI Conference, hot from the Internet CEI boss Alex Amor speaks - Removeable storage shootout, comparision of the new Bernoulli and Fujitsu 230Mb drives - Magic Lantern - Surf the Net, Internet access with your Amiga.

★ ANNUAL SPECIAL - Amiga Dealer List - Amiga Service Centre List - Amiga BBS Listing - Fish Listing  
★ Columns - Online, DPaint, C64 - Games - Super StarDust Alien Breed Tower Assault, Cannon Fodder 2, Beau Jolly Pack including Cannon Fodder, The Chaos Engine, The Settlers, and T2: The Arcade Game. CD32 Banshee.

## February 1995 Vol 12 No 2

- Amiga digital video, full digital video editing. - Workbench 3.1, latest version reviewed - PC-Task, Windows capable Amiga for \$129 - Deluxe Paint 5, a sneak preview - Personal Paint 6.0, and

the Cloanto competitor! - CEI Conference II, Alex Amor speaks again!

★ Dealer List update - Corrections and extensions to the January listing.

★ Service Centre List - More corrections and extensions.

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★ Games - Theme Park - Soccer kid - Subwar 2050 - X-it

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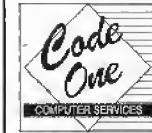
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Let's face it, ten pin bowling is not the world's most popular simulated sport. Sim-golf, yes; sim-soccer, certainly, but bowling?

Well, Team 17, makers of fine Amiga games for a long time now, have decided to make themselves a niche where none previously existed - the entertaining bowling game. There have been bowling games before, for example Strikes And Spares back in 1993, but none of them have been all that exciting - there's not that much to work with.

Team 17 have realised that - Kingpin Arcade Sports Bowling, to give it its full title, comes on just one disk. The disk's non-DOS, and you CAN had disk install the program, but the installer's lumpen and still requires that you boot from the original disk - after the irritating find the number on the black-on-black copy protection sequence the game runs from hard disk.

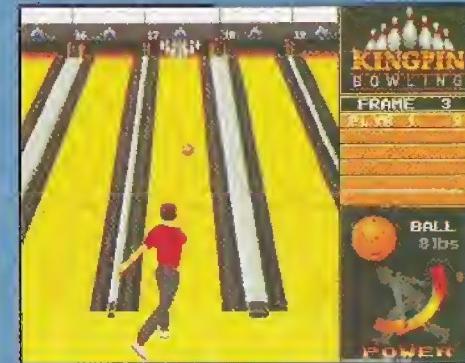
This is the extent of the annoyance you'll face with Kingpin, though; the game itself is rather good. You can use eight, 10, 12, 14 or 16 pound balls (which are the right colour), alleys play at different speeds and hook different ways depending on how they're waxed, the pins bounce and tumble very realistically and you can

put spin on the ball by moving the stick after you position your bowler, set power and let fly.

The only particularly unrealistic thing about Kingpin is the aiming procedure - when you decide on your power and position you hit the button and an aiming sight flicks back and forth on the alley in front of you - the more power you're using, the faster it moves. Press the button again at the wrong moment and the gutter will greet you. But you get this sort of problem with all computer sports games; if you want to feel like you're really doing it, I'm afraid you're going to have to really do it.

There's computer opponents of varying difficulties, configurable players (handedness, shirt colour and handicap), a tricky spares arcade mode where you try to pick up as many of the awkward combinations of pins as you can, and of course full running scorekeeping. The sound is quite good - especially the occasional announcements over the PA ("The bars have just closed." "BOOOOOOOO!"). And the graphics are simple but well drawn.

If you want a sports sim that's a bit out of the ordinary, Kingpin could well be for you.



## KINGPIN Bowling

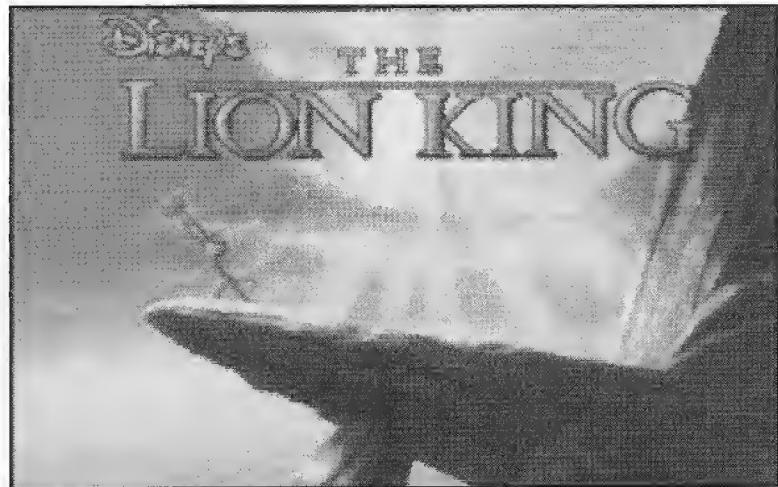
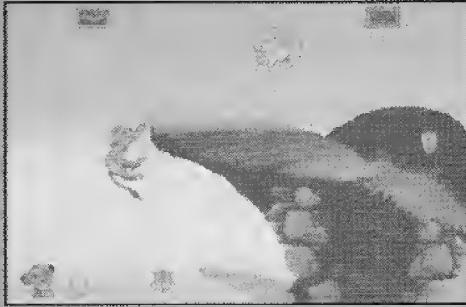
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► This game comes from the same makers as Aladdin (funny, that), and so I had high hopes of it. Aladdin may be a platform game at heart, but there's always room for a really well done genre piece and so I was looking forward to playing The Lion King, in which you get to be Simba, hero of the big Disney animated movie. You start out playing little baby Simba, and in later levels you turn into big bad adult Simba.

Unfortunately, The Lion King turned out to be disappointment. Sure, the graphics are very pretty and the animation nearly as good as Aladdin's, but that's where the similarity stops. This is, I'm afraid, a classic movie license game, relying on the pull of the film to get its sales.

One thing I liked about The Lion King is that there's no stupid looking up of words in the manual - the reason for this could quite likely be the fact that there's only eight pages in the main manual, and one more in the separate getting started guide.

Unlike Aladdin's well written and funny manual, The Lion King's is poorly proofed (apparently vultures "battack" you) and sketchy. And there's still no hard disk installer, either.

The Lion King has all the stan-

dard cute platform game traits - in the early stages you deal with the bad guys by jumping on their heads or rolling into them, with a minimally useful roar attack as well (works on some bad guys, doesn't work on most, but can be powered up). Jumping on some bad guys works, but not rolling, and vice versa. Thanks to the minimalist manual, you have to learn how to deal with monsters by trial and error - you can only jump on a hyena after he's launched an attack and he's standing there panting, and you can only jump on a vulture while it's attacking you, and so on. Get it wrong a few times and you'll die - then it's back to the last savepoint you touched, which can be right back at the start of the level. Aladdin'd hack his way through all these critters without breaking a sweat.

Simba is not very controllable. When you tell him to roar, he'll sit in one place like a spud while he does it and if a bad guy biffs him in the meantime, bad luck.

Likewise, if you decide to do a roll, Simba will roll for a set time - you can't stop early if you see you're rolling somewhere nasty. You can't attack while you're in the air, and the dodgy collision detection means you need pinpoint accuracy to successfully jump on a



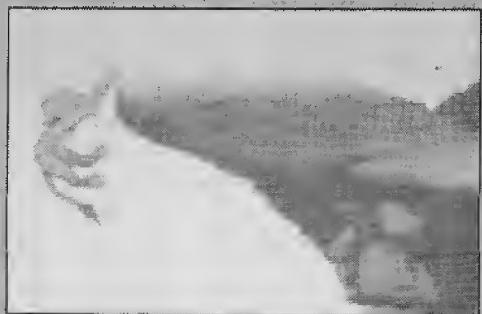
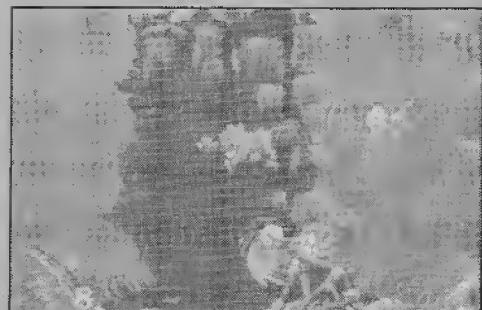
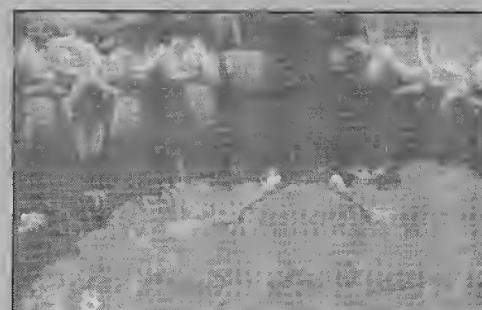
bad guy, and not get spiked. It is likewise something of a hit-and-miss affair when you're doing the inevitable jumps between perilous platforms and tiny handholds. The Lion King designers are keen on bottomless pits, too, so it's not like Aladdin where you usually just end up a mile back in the level if you miss a leap.

When Simba grows up he can do slash and maul attacks, too, but it's still clumsy. I've played lots of platform games as annoying as this one, but that doesn't make it OK - Aladdin can do just about anything just about any time.

Aladdin's music and sound effects are excellent. The Lion King's music is OK, and the ef-

ts are generic (bleep, boing, ouch) and very sparse. These are the quietest jungles you're ever going to see, folks.

Overall, The Lion King is certainly not the lousiest platform game I've ever played - there have been some shockers - but compared with Aladdin it's poor. The graphics are great, but that's it. Perhaps the console version's better - it's got three extra bonus stages that didn't fit on the four AGA Amiga floppies but are nonetheless described (perfunctorily) in the manual. If your kids pester you to buy The Lion King, give them a piece of your mind and get Aladdin instead. □



## Lion King

Contact: Amadeus

Ph: (02) 651 1711

RRP: \$69

# The Australian Graphic Encyclopedia

## *for CD32*

By Daniel Rutter

I know what a multimedia encyclopedia's meant to look like. I've played with Encarta 95 on the PC. You get tons of pictures, tons of text, lots of sounds, a few animations, and it's all cross-referenced. Click an unusual word and you see the definition. Click a city on a map and you see its entry. Search for anything you like through the whole thing. Brilliant.

The Australian Graphic Encyclopedia for the CD32 doesn't set its sights as high as Encarta, not by a long chalk. It's the sequel to the disk-based Australian Graphic Atlas, reviewed previously in Amiga Review, and it's billed as a compendium of information about this country.

There's maps, graphics, and information on historic buildings, the

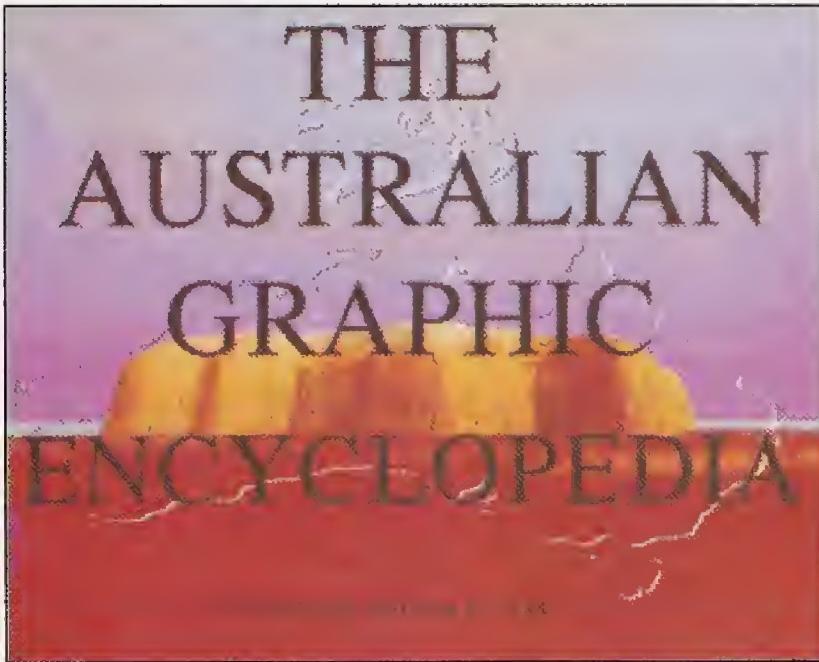
wool industry, wheat, demographics, Antarctica, the Pacific islands, Prime Ministers and, according to the back of the box, much more. So what's it like?

Essentially, the Encyclopedia's a collection of menu screens with buttons you click to see other information - text or graphics. And there's quite a lot of that - the CD contains some 450Mb of data, most of it pictures.

By the standards of the old Graphic Atlas, this is an OK product. But by the standards of modern CD encyclopedias, it isn't.

There's some cross-referencing - for example you can get to the mini-biographies of Prime Ministers by clicking thumbnail images of their faces or by clicking on their tenure in a timeline - but generally speaking it's laid out like a tree, not a web.

Accurate text is essential for any encyclopedia, and typos or grammatical errors make the reader uncertain of the accuracy of the other information. Unfortunately, the Graphic Encyclopedia has both these symptoms of lousy proofreading - those interested in Federal politics will be interested to



know that the House of Representatives Chamber apparently contains someone called the "Chairman of Committees", and the disc itself contains loads of misspelled filenames, leftover .bak files apparently just left lying around because there was enough room to keep them, and other miscellaneous debris. It looks to me like the producers accidentally released an alpha version of the disc, before they'd proofed the text and tidied up the rubble. I can't think of any other excuse for black-on-black buttons being left in - can you?

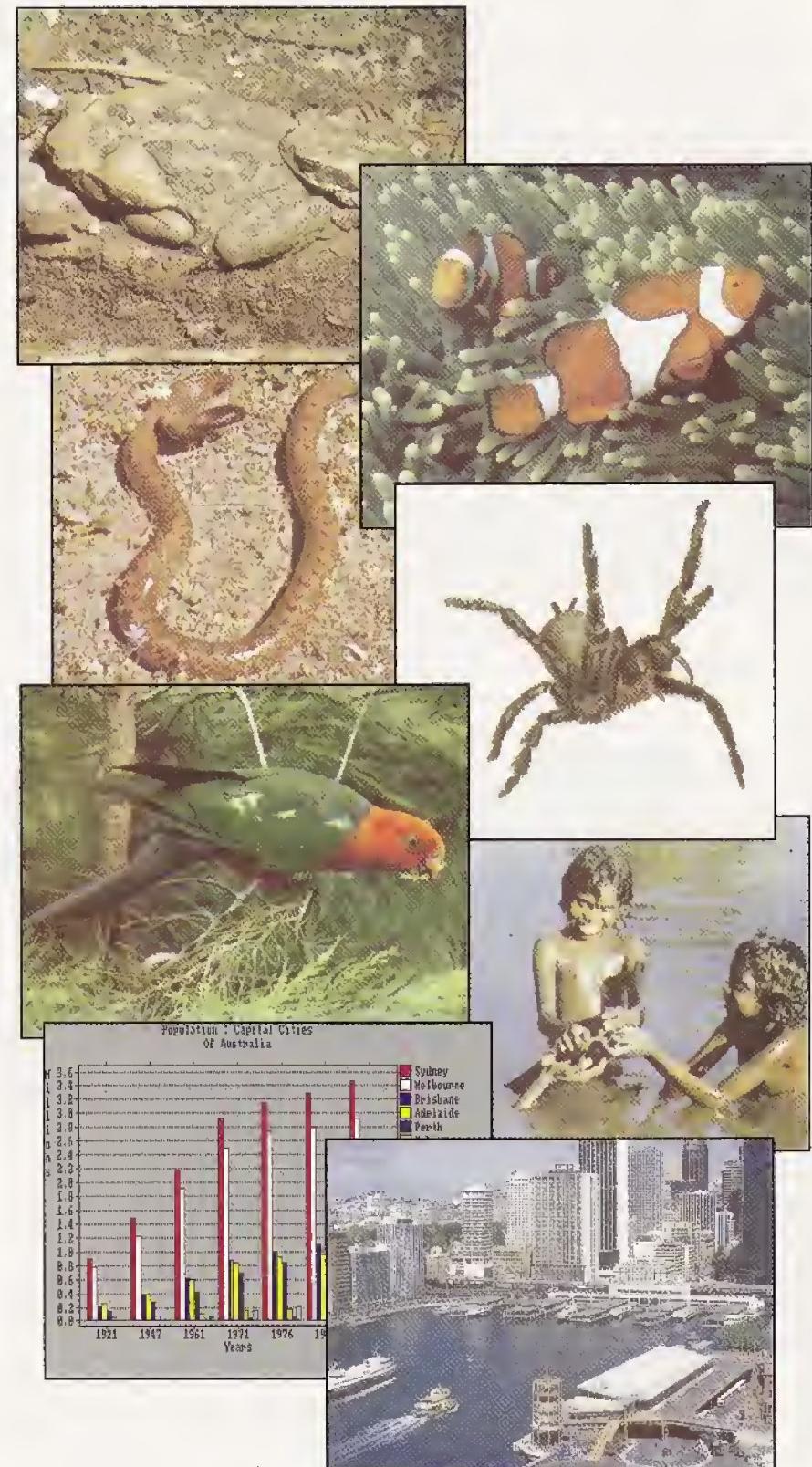
To cap it off, Australian Graphic Encyclopedia's rather slow, taking an alarmingly long time to load a simple screen and looping sample. I was also originally under the impression that the Encyclopedia actually crashed quite often when moving from one menu to another, but I was wrong. It just takes an astoundingly long time. How about a consistent two minutes forty seconds just to load the intro screen for the "Australia's Pacific Neighbours" section?

Australian graphic Encyclopedia's graphics vary from average to dire, with a few pictures for every subject which can be viewed as a slide show. Some of these pictures are actually HAM6, too; this image quality looked pretty amazing in 1985 but is well below par today.

The sound is restricted to looping music - no sound bites from speeches, no other samples, no nothing. If there are any animations, I certainly couldn't find them.

The number one sign of a dodgy CD, for me, is that a coffee table book would do a better job. In this case, it'd do a MUCH better job.

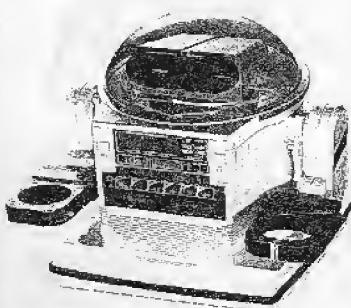
*Contact HC Software on (08) 262 4461 for more information.  
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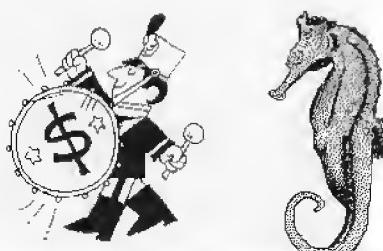
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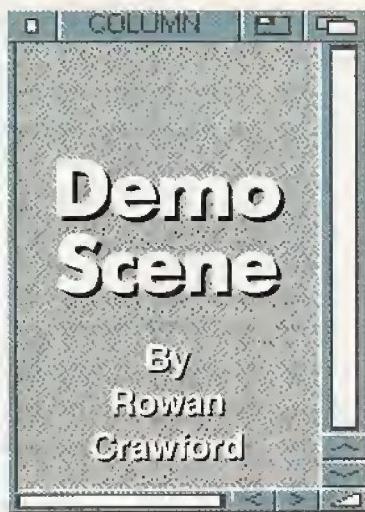
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With demo parties being the main provider of regular demos these days, it seems that disk magazines have become the most popular way to fill the release gaps. Last month saw three magazines, and just one month later there's another two, one of which is a debut issue.

Vision #1 is the second new Australian diskmag to debut in as many months. Created by Devious Dezigns, Vision is noticeably different in concept to last month's Defy (by Cydonia).

Whereas Defy was strictly a 'scene' magazine, Vision attempts to cover a wider variety of subject matter. Whether this broader approach is successful is really dependant on what the reader's interests are - and there's much larger competition in the "real" magazine field for these subjects.

The demo articles themselves are certainly not professionally written, but are interesting in the same way as those in Defy #1. Presentation is quite nice, with some cool font/background colour schemes and a well presented panel. The background module is perfect for a diskmagazine too, although it might grow monotonous after a while.

Vision loses in its lack of multitasking or any ability to exit back to Workbench. This would have been acceptable two years ago, but we really do expect a lot more from a diskmagazine now. Thankfully, Vision is hard drive instal-

lable, and perhaps we'll see the other "system" coding covered in later editions.

For the latest issue (or any back issues), you can write to:

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It'll be interesting to see if the OZ 'scene' can support two disk-magazines. The competition might even create some inspiration in the demo department, which can only be a good thing.

At least Vision works, which is more than can be said for ROM #3. ROM is a new Euro diskmag which has attempted to break the diskmagazine mould set by RAW, and has succeeded to a large extent. However, issue 3 refuses to work on anything except a standard A1200 - insert lecture on how everything should run on all machines here - which makes it somewhat difficult to review. Hopefully they will release a fix soon.

Good graphics slideshows have always been something of a rarity, so the arrival of "My Friend Darkroom" by artist KSS was a pleasant surprise.

KSS, who came 84th in the graphics competition at The Party 94 under the name of Floppy, has a much different graphic style to the usual demo art. There is a real artistic appearance to the pictures, in a similar fashion to the pictures of RA/Sanity, although the results are far different.

KSS uses lots of dark colours mixed with some quite vibrant reds and oranges. Lots of purple. His subject matter ranges from faces to some (rather picturesque) night landscapes. The cloud scapes are a highlight of his work.

With all the pictures being original works, My Friend Darkroom is quite an impressive package. Not all the images are great, but the ones that are good outweigh any negatives by a long way. I would certainly recommend any budding artists to look out for this slideshow.



From one art form to another; music. Music modules are easily the most common releases in the scene, and to a large extent, the most popular too.

There have been numerous CD compilations of modules, each with a wealth of music taken from demos and games, but mainly just modules that have been released by themselves. A forthcoming CD-ROM is attempting to break the pattern and contain only unreleased modules from both the Amiga and PC demo scene's best musicians.

The project is being organised by Sidewinder - a name familiar to some since he has released two CDs of his own music; Future Shock 1 & 2. Rather than just throw the modules (which are written specially for the CD-ROM) onto the disc, this will be an attempt to create the "ultimate multimedia module experience".

Yes, the CD is in fact going to venture into that fuzzy world of multimedia. There will be a visual front end - the Amiga version of which is being built by Perth coder Idea/Megawatts - leading to both aural and visual presentations for each musician. This will include the modules (no surprises there), text, animations (MPEG/CDXL), along with anything else the musician wishes to add to his area.

There will even be a large 2 minute long rendered intro animation, created by yours truly, with character design and modelling by the master of Anime, Tomwoof/Megawatts. As far as demo projects go, this is a BIG one, and with music coming from all the big names in Europe, the US and even Australia, chances are that the end result will be worth it.

The "between parties" wait is over once again, as just recently The Gathering 95 was held in Europe (the second largest yearly party behind The Party).



Next month I'll look at all the big winners and losers from the various competitions, as well as take a quick look at their experiment with the "intro" competition.

□



If you have some graphic art to contribute, why not shoot us a disk - or modem the file to our simple BBS on (02) 816 4714.

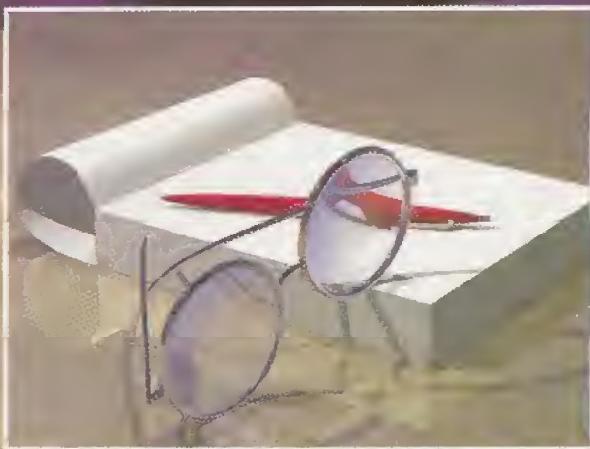
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800 x 600, 24bit, Created with Real 3D V2.49  
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752 x 576, 24bit, Created with LightWave 3.5  
By Ivan Smith.



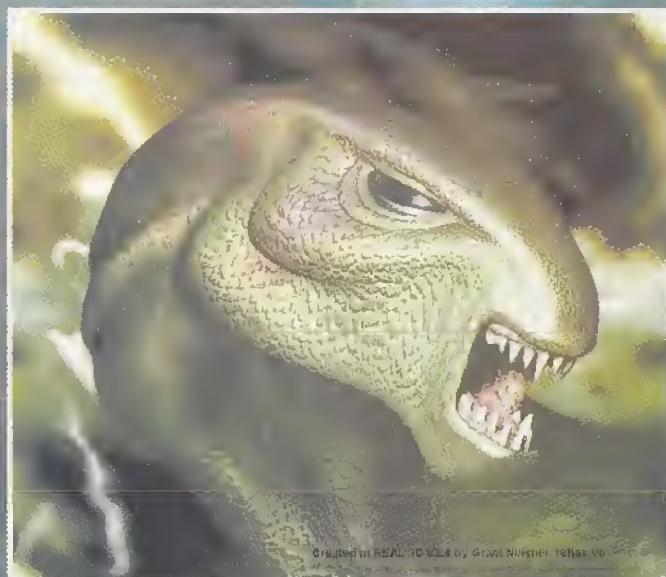
320 x 265, HAM, Created with Imagine V3 and Dpaint  
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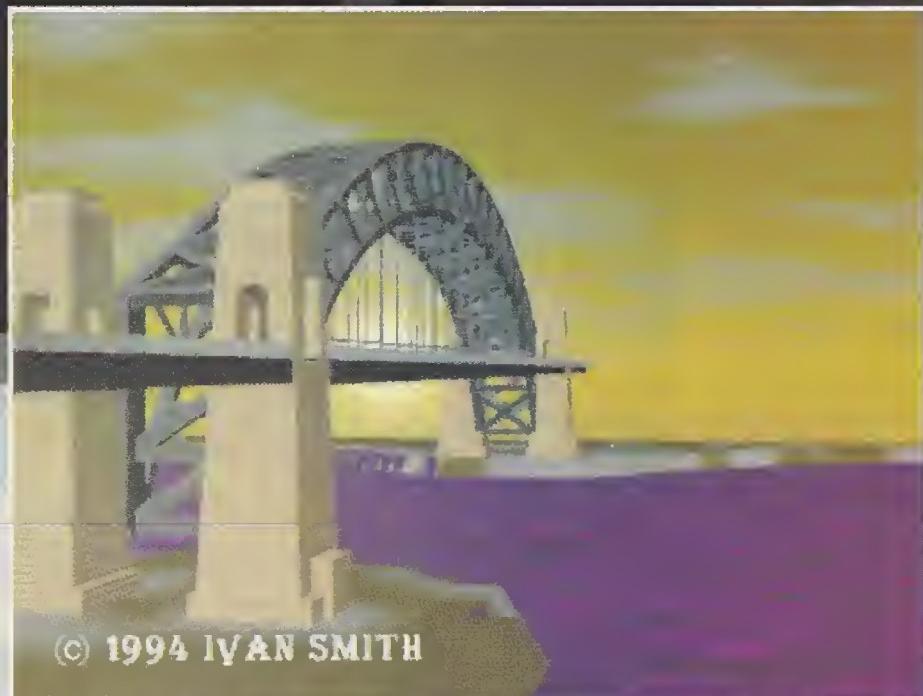
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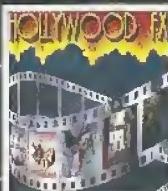


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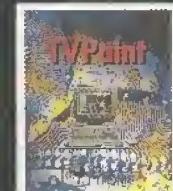
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